Volume 89 Number 16

STEEL

For forty-eight years—IRON TRADE REVIEW

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

The Week In Steel

BEFORE any substantial building can be erected the site must first be cleared, then strong, sustaining foundations put in. To drive the piles only part way to bedrock would invite disaster, perhaps necessitate entire reconstruction, at a critical point in erecting the superstructure. Patently, a building is no stronger than its foundations; business is no sounder than its underlying factors. For almost two years business has been removing the debris of 1929, the site appears practically clear, but few are bold enough to rebuild until assured that the quicksands which toppled the business structure in 1929 are tamed. So an already-harassed President mounts the government pile driver.

Confidence First, then Forward March

Primarily, the President's recent conferences with leaders in business and congress and his proposal to establish a credit pool into which to drain frozen bank credits are designed (Page 16), first to put down a cofferdam to check runaway pessimism; second, to drive piles of confidence upon which to construct a mat solid and broad enough to support recovery. Necessarily the benefit will be general, but some must redound directly to steel. . . . Not only the White House is in the limelight at Washington. At the interstate commerce commission the 15 per cent freight rate case is being mulled over. The capital's best speculators are in agreement (Page 15) that an increase, if any, will be very slight.

No Prompt Relief from Railroad Wages

Whether or not the railroads are successful in their campaign for higher rates they have, meanwhile, laid open their entire financial situation, with a guilty finger pointing at wages. The machinery for effecting any adjustment is devious, however, mediation would consume months, and Washington looks (Page 16) for no relief until spring. . . . Government wages will not remain sacred that long if an influential Indiana congressman puts through (Page 25) his threatened 10 per cent reduction.

Anti-trust Laws To Be Target for Congress

So far as outward appearances are concerned, the conference movement set in motion by the President may merge into legislative action by congress, scheduled to convene in eight weeks. Certain it is, there will be considerable pres-

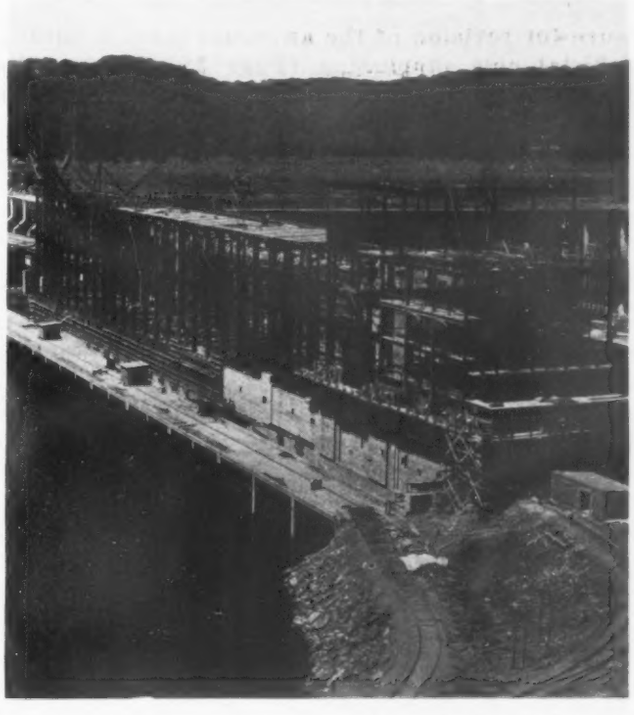


Photo Courtesy Arundel Corp., Baltimore

In one recent week 30 to 40 carloads of power plant equipment arrived at Safe Harbor, Pa., where this $9,000,000 dam and electric transmission project is under way. Susquehanna river will be harnessed for initial capacity of 255,000 horsepower

Wide World Photo

Making progress on St. Lawrence waterway: The initial 500,000 horsepower station at Beauharnois, near Montreal. An ultimate capacity of 2,000,000 horsepower for this project is contemplated.

sure for revision of the antitrust laws, a mining official now supporting (Page 25) gestures by certain steel leaders. . . . One plank in the relief platform of the American Association of Engineers also bears down (Page 18) hard upon the Sherman law.

See Dole Masquerading as Insurance

Concerning unemployment insurance there is no such unanimity of opinion. . . . Insurance of the nature generally proposed is only another name for a dole (Page 18), warns the Illinois Manufacturers' association. . . . On the other hand, the American Association of Engineers views such insurance as vital, also urging revision of the present pension system. . . . Following up his recent program of collectivism for industry, General Electric's president presents (Page 17) something very practical in the way of a 6-month guarantee of work for his men. . . . A New England concern learns (Page 17) how little is required for a guarantee fund.

Building Reaches Out for New Worlds

During this depression the building industry has provided relatively more tonnage for steel than any other major industry, but it is by no means through contributing. . . . Nineteen "key" groups in the building industry have organized (Page 25) the Construction League, for better co-operation and stimulation. . . . In the year ending next October building projects costing $4,000,000,000 will mature (Page 25), it is estimated. . . . That is, provided a jurisdictional war threatened (Page 18) in the organized building trades does not materialize. . . . In the past week fresh structural steel awards (Page 54) totaled 24,296 tons.

Detroit Hopes for One Good Month

Despite successive postponements, steel producers live in hopes of improvement, now basing their expectations upon improved demand from the automotive industry (Page 49). . . . Ford, long an absentee from the steel markets, has placed (Page 22) a moderate tonnage. Dealers' stock requirements buoy Detroit's hopes for at least one good auto production month in the last quarter. . . . Motorists, perplexed by the failure of an apparently good enamel finish on their cars, can blame (Page 36) improper cleaning of the steel. . . . Scarifying has been found effective by a Cleveland mill (Page 39) in removing surface defects from semifinished steel.

Harness Dragging Torque in Sheet Mill

An installation combining successful regeneration of electric power with production of a dragging torque to prevent backlash in mill rolls has been operating for three months on a Detroit district sheet mill. (Page 31). Previous attempts to improve drags have been unsuccessful because of inability to synchronize the power generated with plant power systems. The new equipment, which is automatically controlled has been demonstrated to reduce the drag load considerably and to effect substantial savings. It will regenerate, it is claimed, from 75 to 85 per cent of the power used for creating the required dragging torque.

Floating Steel An Aid to Navigation

Floating in salt water within 10 miles from the Battery, 2000 tons of steel in the form of buoys aid navigation and generally safeguard (Page 24) New York harbor. Gas tank steel, formerly imported, now is made in superior quality in American mills. . . . About 200 tons of steel goes annually into the production (Page 38) of industrial magnets. . . . Cutting tests on a nickel steel log have revealed (Page 34) exceptional cutting capacity and ruggedness for cemented tantalum carbide tools. . . . Machine toolmakers are sanguine (Page 77) that the new federal credit pool will encourage the placing of noteworthy orders.

See Small, if Any, Rate Rise; Wage Adjustment Impends

WASHINGTON — At this time any statement concerning the decision of the interstate commerce commission in the 15 per cent freight rate case, initiated by the railroads June 17 and concluded with oral arguments Sept. 24, is pure speculation.

Individual members of the commission may have reached a conclusion, but it is not known that the commission as a body has acted. But, since the commission is committed to a speedy decision, an announcement is expected shortly after Oct. 15—Saturday afternoons Oct. 17 and 24 being favored.

Meanwhile, there is a considerable body of opinion concerning the case, this opinion being based upon observations made by railroad officials, the tenor of questioning by members of the commerce commission from the dais, the policy of the commission in previous general rate cases, and logic which takes into account expediency.

Increase Is Doubtful

This opinion is that the chances of the railroads being awarded any percentage increase at all are very slight, and if any increase is granted it will be extremely small and agricultural products are certain to be exempted.

Shortly after the railroads filed their application in June it was believed they might argue a compromise out of the commission—an advance of 7 or 8 per cent. But speculation has steadily been whittling down the odds and now it is said that five of the eleven members of the commission are opposed to any rate rise whatsoever, with several at least doubtful.

There are two horns to the dilemma before the commission. One is that the transportation act of 1920 stipulates that the railroads shall receive a "fair return" of 5¾ per cent. There is no argument over the railroads' contention that at present their return averages barely 2 per cent, and that the full 15 per cent rise would lift the average to only 4 per cent.

The other horn of the dilemma is that the commission is charged with fixing "just and reasonable" rates, taking into consideration all business conditions.

There is a tendency at Washington to search for an ulterior motive and not to credit any action with disclosing its entire purpose on the surface. Peering beneath this rate case, Washington spies the groundwork for reducing railroad wage rates. There has been some encouragement in the frequent references of railroad counsel to the inevitability of reducing labor costs if greater revenues are not made available.

Certainly, the 15 per cent rate hearing has served the purpose of putting the railroad situation in the open and making inescapable the logic that with dividends omitted or reduced, hours of work curtailed, maintenance and shop work deferred, personnel greatly reduced, and salaries lowered, the one remaining untouched item is wages.

Delay Action on Wages

It is not believed that the wage question will be pushed this winter by the railroads, but by spring, if business conditions have not perceptibly improved, it is logical to expect that the issue will be joined. Perhaps, also, by that time the administration may have modified its position on wages and taken the stand that its primary concern was to maintain the American standard of living, and that if decreased living costs and decreased wages are synchronized, the effect would be the same.

Reducing railroad wages is a long and laborious procedure, a procedure to which congress gave assent 11 years ago. The larger lines have wage agreements with 21 different unions, and in order to initiate a change in wages 30 days' notice is required. Previously both parties must have exercised every facility for an amicable adjustment, the government machinery being only for purposes of arbitration or mediation.

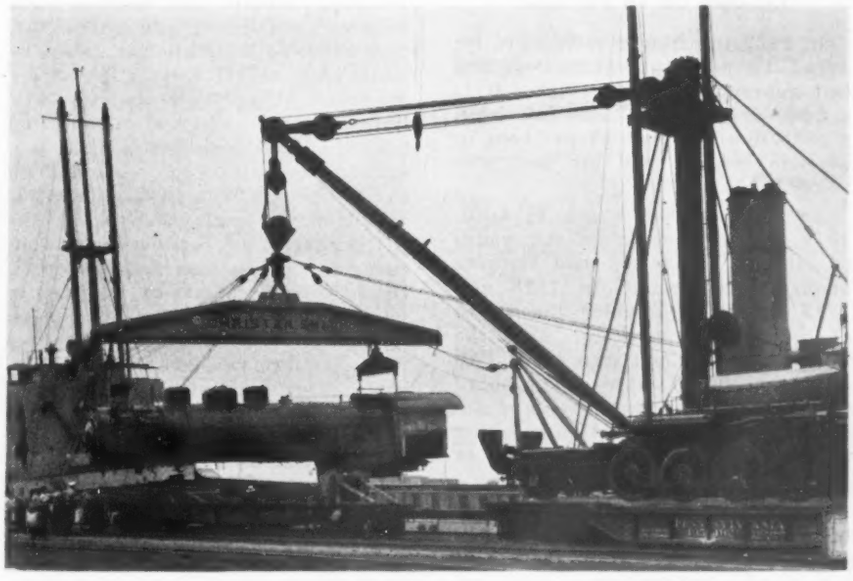
Aim At Compromise

If a wage agreement between the roads and the unions is impossible the United States board of mediation, set up by the transportation act, is called in to see if it can find a common ground on which a compromise can be built up. Should this board be unable to effect a compromise and a strike is voted, the board reports this fact to the President.

It is then up to the President to appoint an emergency board to investigate the dispute and report back to him. It is incumbent on the unions not to take any action until 30 days after the report has been made to the President. This emergency board is also supposed to advise the President regarding action.

It has been estimated in the present instance that if the railroads appoint joint committees it would involve 1400 proceedings.

In connection with this railroad wage rate situation a case has recently come to the attention of the public in a small way. There was a threatened strike on the Louisiana & Arkansas railroad employing some



American locomotives will supply the motive power for many freight and passenger trains in the new era of old Russia. The soviet is seeking to overcome the country's deficiency in railroad transportation. A considerable portion of its expenditures amounting to $48,500,000 in the United States in the first eight months this year was for railroad equipment. The illustration shows locomotives from the Baldwin Locomotive Works, Philadelphia, being loaded on motorships for shipment to Russia

600 men. Last February the road made an effort to cut shop wages 5 cents per hour but the men refused the cut and the matter went to the board of mediation.

The board sent men to investigate the situation but they could get no place with a settlement of the cut. A strike was called of some 200 shop men. Just previous to the strike, however, the President appointed an emergency board and the strike was averted.

The board made a report to the President in May, which was not made public, and on July 10 the board reported that the road should not make any reduction in the wages. However, the wages were cut and put into effect but there never was any strike on the road.

The question of the freight rates, both increases and decreases since the war, is of interest in this connection also. In 1917 the railroads asked for a 15 per cent freight rate increase. This was originally denied but the case was reopened later and the roads were given the 15 per cent increase in part.

In 1918 the government took over the roads and gave them the rest of the 15 per cent increase which had been asked for in 1917. Then W. G. McAdoo, as director of railroads, raised freight rates 25 per cent in 1918, and in 1929 after the railroads had been returned to their owners there was a general increase in rates in the East of 40 per cent, in the West 35 per cent, in the Mountain Pacific states 25 per cent, and in the South 25 per cent, making an average of about 33 1/3 per cent for the entire country.

Receipts Off 16 Per Cent

In 1922 the freight rates were reduced 10 per cent, which was the last general change in rates. It is estimated also that there has been a reduction of about 16 per cent in average receipts per ton per mile since 1922.

As to the railroad wages. In April, 1918, Mr. McAdoo raised the wages of some of the lower paid workers about 25 per cent. In 1918 and 1919 he almost doubled the wages of the railroad workers. Also, the 8-hour day was put into effect. In 1920 the United States labor board considered further increases and another increase was made amounting to approximately $618,000,000 or about 25 per cent in the wages.

In 1922 there was a 10 per cent reduction in wages of the rail workers. In 1926 and 1927 there was considerable arbitration of one kind or another and the general wages were raised about 7½ per cent, although there were some exceptions to that rule. Since that time there have been no general wage changes put into effect.

Acme Photo

New bridges crowding out old in the heart of London: Rapidly nearing completion is the modern steel Lambeth bridge over the Thames river, as seen at the left of the illustration. On the right is the old footbridge

Expect Billion Dollar Credit Corp. To Release Funds and Quicken Industry

WASHINGTON—Within a week frozen or sluggish bank credits, fundamentally sound but for various reasons ineligible for rediscount at federal reserve banks, are expected to be flowing into the vast credit pool being set up by the newly-established National Credit Corp.

Basically, this move set on foot by President Hoover last week to stem runaway pessimism and check further enforced liquidation of assets by banks and individuals is a salvage operation. But the sequel to shifting the burden of slow credits from individual banks to this central federal agency will be the release of up to $1,000,000,000, presumably for legitimate business purposes.

Restoration of confidence, prevention of needless sacrifice of securities, threatened loss of equities in homes by many small homeowners, release of bank funds now frozen—these are the expected benefits. In turn, a general quickening of business, including steel, is believed to be inevitable. Official Washington does not count upon a tremendous bulge in business but it will be disappointed if a solid foundation for recovery is not being laid.

Incorporation of the National Credit Corp. under the laws of Delaware Oct. 10 followed a series of conferences by the President with leaders of business and of congress, the latter assuring validation of certain formalities at the coming session of congress. Nominally, the capital of the corporation is $1200 — 12 shares of $100 each being held by an equal number of directors representing the 12 federal reserve districts.

The corporation is authorized to issue debentures up to $1,000,000,000 to subscribing banks, asked to participate up to 2 per cent of their net demand and time deposits. If earned, interest will be paid on these debentures. The $1,000,000,000 thus raised will be employed for rediscounting what is roughly described as "sound but ineligible" paper. In each reserve district the corporation will set up an organization.

With the foundation thus laid for recovery of domestic business, the President is expected to turn again to contemplation of the foreign situation. An extension of the current one year moratorium on foreign war debt payments beyond July 1, 1932, is indicated provided the interested European nations correct their internal political situations. There is a general atmosphere in Washington that genuine, forward-looking action in both the domestic and the foreign situations is being taken.

Gets Drawback on Sheets

Washington—The treasury department has announced allowance of a drawback on steel sheets manufactured by the American Rolling Mill Co., at its plants at Middletown, O., Ashland, Ky., and Butler,

Pa., with the use of imported ferromanganese or ferromanganese produced under drawback regulations.

Davis To Address P.A.'s

The Purchasing Agents' association of Cleveland has obtained as its guest speaker at its "Executives' Night" special meeting Sen. James J. Davis, of Pennsylvania. Senator Davis was secretary of labor in the cabinets of Presidents Harding, Coolidge and Hoover, and is noted as a rapid fire speaker. This meeting with dinner will be given at Hotel Cleveland, Oct. 15, at 6:45 p. m.

Dominion Is Curtailing

Toronto, Ont.—Operations are being curtailed by the Dominion Iron & Steel Co. at its Sydney, N. S., works as a result of a lack of orders. The blooming mill went down Oct. 3. The wire and nail departments have orders to carry them to Oct. 20. Rod and bar mills are to operate 2 or 3 days as orders are received. Otherwise, the company was to suspend Oct. 12.

Form Engineering Corp.

Pittsburgh—Mead Penn Iron Works Co. has been consolidated with the Pennsylvania Engineering Works, with William H. Lewis, president of the latter company, head of the new company which will be known as the Pennsylvania Engineering Corp. Its headquarters will be at New Castle, Pa.

General Electric Offers Six-Month Job Guarantee

BELIEVING that anxiety over their jobs and earnings causes discomfort to workers and reduces their effectiveness and output, General Electric Co., Schenectady, N. Y., Gerard Swope president, has offered a plan to guarantee steady employment for six months, Nov. 1, 1931, to April 30, 1932.

In providing for this effort to make the lot of the worker easier, both employes and company will participate, the latter taking the heavier burden in case conditions become worse than at present. After working employes have contributed up to 2 per cent of their earnings and the company has equaled these payments, further needs will be met by the company without employes contributing additionally.

The company calls the new proposal a "plan to prevent further layoffs for lack of work." It will be voted on by employes who are members of the company's unemployment pension plan, which includes almost all shop employes. Mr. Swope describes the plan as designed to divide the work so there will be no further layoffs for lack of work in the six month period, without compensation; that all those on the payroll Nov. 1 will receive during this period not less than the equivalent of half their average weekly earnings for full time, but in no case more than an average of $15 a week; if actual earnings are above that average the employe to receive his actual earnings.

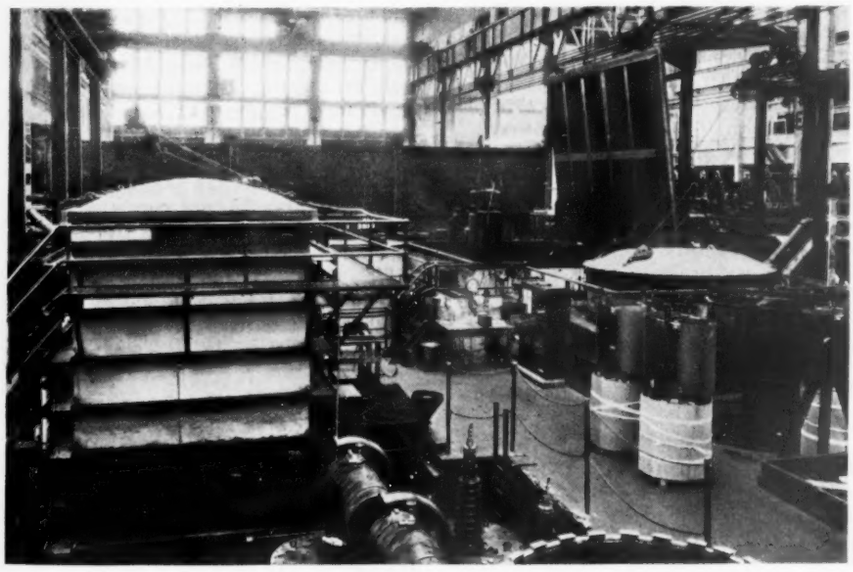
Three methods are to be put into effect to attain these results. Employes will be kept busy at work outside their regular duties, if necessary, at the prevailing rate for the new work.

The unemployment emergency fund, which has been in operation since Dec. 1, 1930, will be enlarged, by increasing contributions of all employes working more than half time from 1 to 2 per cent, the company contributing an equal sum.

If these two methods are inadequate directors of the company will be asked to authorize additional payments to the unemployment emergency fund without further increasing employe contributions.

About $1,000,000 has been paid out by the emergency unemployment fund in the ten months it has been in effect. Half came from contributions by workers employed half time or more and the remainder was provided by the company.

Editor's Note: For Mr. Swope's program of collectivism in industry to insure uninterrupted employment and eliminate inimical business practices see STEEL, Sept. 17, Page 15.



Nature may abhor a vacuum, but a vacuum in its proper place is mighty useful. Because successful operation of a large high-voltage transformer is to a great extent dependent upon its freedom from moisture and air bubbles, the cores and windings are impregnated with oil, in this Pittsfield, Mass., plant of the General Electric Co. Air and moisture are removed by placing them in tanks and exhausting all the air and moisture from the tanks. Then oil is pumped in under sufficient pressure to saturate them

Small Reserve Would Insure Steady Employment

Three-quarters of 1 per cent of the payroll of the Geometric Tool Co., New Haven, Conn., for the years 1923-29 inclusive would have set up a reserve to have maintained wages of the stable group of employes of the company at 80 per cent of normal for those with dependents and 60 per cent of normal for those without dependents for 52 weeks of short-time work.

This discovery, termed "quite amazing" by James W. Hook, president of the company and prominent industrialist of New England, was developed in the course of the company's study on a guarantee of work. Other New England industrial plants, at the suggestion of the New England Council, are endeavoring to ascertain the cost of leveling off production in order to carry so-called stable employes during slack times.

By stable employes, in the experience of Mr. Hook, as noted in STEEL

Sept. 24, Page 18, are meant 40 per cent of the 5,000,000 persons now unemployed. Twenty-five per cent are rated as ordinarily unemployable, 35 per cent as casual or nomadic workers.

Steel Employment Further Reduced in August

Washington—Employment in 194 iron and steel plants in August declined 2.1 per cent from July, according to reports to the bureau of labor statistics. Weekly payrolls in the same plants were reduced 4.5 per cent.

In 166 structural steelwork plants employment increased 0.3 per cent, while payrolls were reduced 5.2 per cent. Reports from 147 machine tool manufacturers showed employment was down 11.1 per cent, and payrolls off 10.2 per cent. A decline of 2.5 per cent in employment and 9.2 per cent in payrolls was noted for 40 cast iron pipe plants.

Three Planks in Engineers' Unemployment Platform

A platform for relieving unemployment was proposed by H. A. Wagner, national director of the American Association of Engineers, Chicago, at the recent convention at Huntington, W. Va.:

A revision of existing laws in order to permit large employers to take the necessary steps toward the control of supply and demand.

Some sort of unemployment insurance, the cost of which shall be borne equally by employers and employes.

A revision of the present so-called "pension system."

Building Trades To War?

Washington—Building trades department of the American Federation of Labor, at the recent Vancouver, B. C., convention, declared war on three powerful unions not members of the department—the bricklayers, electricians and carpenters. It is claimed that these unions in effect constitute a dual organization of building trades workers and are encroaching upon other unions. Sharp jurisdictional disputes, with resulting strikes and delay in building, are feared as a consequence.

Says Insurance Is Dole

Chicago—The Illinois Manufacturers' association, following a survey, has concluded that national or state unemployment insurance is not the remedy for unemployment and in effect is a dole. There is a lack of statistical background, it is pointed out, and fluctuating economic conditions create such varied conditions that no sound basis can be discerned for it.

Sloan Valve Establishes Fund for Employes

Sloan Valve Co., Chicago, announces an employes' relief plan combined with wage revisions, the latter based on a 7-hour day. If the plan is continued for a year, it should create a fund of $20,000 for relief work among employes, it is stated.

The company has adjusted compensation of all officers, executives and salaried employes on the 7-hour basis, and one-half of the amount thus saved will be set up as a relief fund for needy employes. The plan is to be administered by a committee composed of one officer and four employes.

The company also will stagger shifts in all production departments to spread out employment. The cut in compensation of officers, executives and salaried employes is 10 per cent, but wage earners on an hourly basis will work under the same rate.

Discuss Manufacture and Use of Refractories

Cleveland—Problems relating to the manufacture and application of refractories were discussed at the fall meeting of the American Refractories institute held in Cleveland, Oct. 9. Some 35 members attended the sessions.

Two papers on dry pressed brick were presented as follows: "Improving Dry Press Brick by the Removal of Air," by Dr. George A. Bole, research professor, engineering experiment station, Ohio State university, Columbus, O., and "Effect of Various Factors on Pressure Transmissions in Dry Pressing," by Prof. C. M. Dodd, Rolla School of Mines, Rolla, Mo., and secretary of the committee on dry press process.

Other papers were: "Notes on Firing Refractories," by S. M. Kier, vice president, General Refractories Co., Pittsburgh; and "Permeability of Refractories to Gas at High Temperatures," by Stuart M. Phelps, director, refractories fellowship, Mellon Institute of Industrial Research, Pittsburgh.

Open discussions were held on the subject of firing of refractories, causes of kiln marking and secondary expansion.

Short Haul Rates Nov. 5

New York—Railroads are expected to put proposed short haul freight rates in effect Nov. 5. Inasmuch as the railroads have been granted special permission by the interstate commerce commission to establish rates upon 10 days notice, the new rates probably will be filed Oct. 24. New England will be the only part of the eastern districts not affected.

Receiver Is Asked for National Radiator Corp.

Pittsburgh—Suit has been filed in federal district court here by the reorganization committee, asking a receiver for National Radiator Corp. This action, it is alleged, is taken to protect bondholders and creditors. Interest on a $10,000,000 bond issue due in 1947 was defaulted recently.

National Radiator Corp. has nine plants for making steam and hot water radiators and cast iron boilers for heating purposes; two plants at Johnstown, Pa., where are also general offices; two at New Castle, Pa., and one each at Trenton, N. J., Utica and Dunkirk, N. Y., Framingham, Mass., and Chicago. It also has warehouses or offices at New York, Boston, Philadelphia, Chicago, Cleveland, Pittsburgh, Baltimore, Cincinnati and Richmond, Va.

On Feb. 11, 1931, a plan and agreement to reorganize the corporation were formulated by a reorganization committee headed by Rudolph B. Flersham as chairman, he also being chairman of the executive committee of the National company.

Financial Notes of Steel And Iron Industry

Allis-Chalmers Mfg. Co., Milwaukee, has declared a quarterly dividend of 25 cents, payable Nov. 16 to record Oct. 24, placing the stock on a $1 annual basis, against $2 previously.

□ □ □

Transue & Williams Steel Forging Co., Alliance, O., has taken no action on the regular 25-cent common quarterly dividend due at this time.

□ □ □

Otis Steel Co., Cleveland, has omitted the quarterly dividend of $1.75 on the cumulative preferred stock due at this time.

□ □ □

Pittsburgh Screw & Bolt Corp., Pittsburgh, has deferred action on the third-quarter dividend. Three months ago the rate was cut to 17½ cents from 35 cents.

Increase in Boiler Orders

Surpassing July's total, August orders for steel boilers at 827 units were the highest monthly total in 1931. This compares with orders for 816 in July and 818 units for June. August's orders had an area of 594,698

square feet, against 687,058 for July.

For the eight months of 1931, 5552 boilers of 5,251,644 square feet area have been ordered. Over the comparable 1930 period, 9132 boilers of 10,039,605 square feet had been placed, according to the department of commerce.

Shape Orders Touch Low in August; Shipments Off

Bookings of structural shape fabricating interests were estimated for the entire country to be at 31.1 per cent capacity in August, based on actual reports of 233 interests to the department of commerce. Shipments were down, but not at a low for the year. Comparison of monthly figures follows:

	Bookings		Shipments	
1930	Tonnage	Per cent capacity	Tonnage	Per cent capacity
Aug.	252,000	63.0	262,400	65.6
8 mo.	2,020,800	63.2	2,141,200	66.9
Sept.	155,600	38.9	243,200	60.8
Oct.	209,200	52.3	239,200	59.8
Nov.	151,200	37.8	195,200	48.8
Dec.	152,800	38.2	168,400	42.1
Year	2,689,600	56.0	2,987,200	62.2
1931				
Jan.	162,400	40.6	172,000	43.0
Feb.	158,400	39.6	166,400	41.6
Mar.	184,400	46.1	151,200	37.8
April	292,800	73.2	158,400	39.6
May	152,800	38.2	148,000	37.0
June	177,200	44.3	162,400	40.6
July	159,200	39.8	181,600	45.4
Aug.	124,400	31.1	168,800	42.2
8 mo.	1,411,600	44.1	1,308,800	40.9

August Plate Orders Fall; Storage Tanks Low

Due to declines in the needs of steel plates for use in oil-storage tanks, total orders in August, with the exception of June, were the lowest of the depression. Material for tank cars and refineries was fairly steady, though the miscellaneous class was down slightly. Department of commerce tabulations follow, showing orders for three of the six classifications:

In Tons

1930	Total	Oil storage tanks	Blast furnaces	Miscellaneous
Aug.	**36,513**	**10,056**	**750**	**21,910**
8 mo.	338,234	80,937	9,298	149,680
Sept.	**41,066**	**14,916**	**514**	**18,301**
Oct.	**30,197**	**4,518**	**231**	**18,665**
Nov.	**33,151**	**9,965**	**179**	**14,632**
Dec.	**26,787**	**5,118**	**135**	**13,227**
Year	469,435	115,454	10,357	214,505
1931				
Jan.	**27,518**	**2,598**	**111**	**20,845**
Feb.	**24,438**	**3,585**	**75**	**16,245**
Mar.	**31,056**	**2,538**	**833**	**21,697**
April	**29,916**	**7,749**	**25**	**17,783**
May	**26,210**	**2,411**	**230**	**20,370**
June	**22,806**	**4,679**	**356**	**15,817**
July*	**27,261**	**4,136**	**51**	**18,785**
Aug.	**23,858**	**1,138**	**125**	**17,907**
8 mo.	213,063	28,834	1,806	149,449

*Revised.

September Ingot Production Declines to 28 Per Cent

STEEL ingot production in September swept to a new low not only for the current depression but also for the entire period since September, 1921. The decline from August to September was even greater than from July to August, and compared with September, 1930—then considered a poor month—last month's rate was barely half as great.

September's daily average output of open-hearth and bessemer steel ingots, according to the American Iron and Steel institute, was 59,523 gross tons, engaging 28.02 per cent of the industry's capacity. This compares with 66,133 tons and 31.13 per cent for August, and 109,245 tons and 54.56 per cent for September, 1930.

In point of total output, September was a 1,547,602-ton month, bringing 1931 output for the year to Oct. 1 to 20,411,736 tons. A year ago 32,401,981 tons had been produced. Unless a drastic reversal occurs, 1931 output of open-hearth and bessemer steel will not exceed 26,000,000 to 27,000,000 tons, the poorest since 1921.

Thus far in 1931 steelmaking capacity has been engaged at 41.24 per cent; for the same period of 1930 operations averaged 69.46 per cent, and for all 1930 the rate was 63.09 per cent. The percentage of operations is based upon an open-hearth and bessemer capacity of 66,069,570 tons estimated as of last Dec. 31.

May Raise Plate Pool

Washington—British manufacturers of ship plates are proposing to levy on themselves for a pool equal to $250,000 with the pound sterling at par, this sum to be placed to the credit of shipbuilders as a subsidy to assist them to complete orders which otherwise might be placed abroad. In turn, shipbuilders agree to use only British steel, states the department of commerce. The plan was proposed as an alternative to reducing plate prices.

Steel Ingot Production — 1930-31

95.21 Per Cent of Industry Reporting
Gross Tons

1930	Open-hearth	Bessemer	Monthly output companies reporting	Calculated monthly output all companies	No. of working days	Approximate daily output all companies	Per cent operation
Jan.	3,157,761	441,572	3,599,333	3,778,235	27	139,935	69.89
Feb.	3,335,428	508,618	3,844,046	4,035,111	24	168,130	83.98
Mar.	3,513,269	539,616	4,052,885	4,254,331	26	163,628	81.73
Apr.	3,405,671	509,234	3,914,905	4,109,492	26	158,057	78.95
May	3,265,353	528,968	3,794,321	3,982,915	27	147,515	73.68
June	2,849,079	407,586	3,256,665	3,418,535	25	136,741	68.30
July	2,430,128	353,723	2,783,851	2,922,220	26	112,393	56.14
Aug.	2,541,367	374,467	2,915,834	3,060,763	26	117,722	58.80
Sept.	2,275,910	429,975	2,705,885	2,840,379	26	109,245	54.56
9 mos.	26,773,966	4,093,759	30,867,725	32,401,981	233	139,064	69.46
Oct.	2,165,341	399,704	2,565,045	2,692,539	27	99,724	49.81
Nov.	1,807,133	300,337	2,107,470	2,212,220	25	88,489	44.20
Dec.	1,659,026	226,788	1,885,814	1,979,547	26	76,136	38.03
Total	32,405,466	5,020,588	37,426,054	39,286,287	311	126,322	63.09
1931							
Jan.	2,044,298	296,620	2,340,918	2,458,689	27	91,063	42.86
Feb.	2,085,529	296,974	2,382,503	2,502,366	24	104,265	49.08
Mar.	2,504,060	346,137	2,850,197	2,993,590	26	115,138	54.20
Apr.	2,275,404	316,668	2,592,072	2,722,479	26	104,711	49.29
May	2,083,833	301,639	2,385,472	2,505,485	26	96,365	45.36
June	1,730,109	246,365	1,976,474	2,075,910	26	79,843	37.58
July	1,570,776	225,030	1,795,806	1,886,153	26	72,544	34.15
Aug.	1,462,469	174,631	1,637,100	1,719,462	26	66,133	31.13
Sept.	1,274,321	199,151	1,473,472	1,547,602	26	59,523	28.02
9 mos.	17,031,050	2,402,964	19,434,014	20,411,736	233	87,604	41.24

Figures exclude crucible and electric ingots. Operating percentages for 1930 are based on capacity of 62,265,670 gross tons as of Dec. 31, 1929; for 1931 on capacity of 66,069,570 gross tons as of Dec. 31, 1930.

Industrial Men in the Day's News

Charles M. Gearing, General Works Manager, New Departure Mfg. Co., Bristol, Conn.

FROM early beginnings with precision manufacturing, his affiliation with the New Departure Mfg. Co. now dates to an employment 41 years ago.

HE has seen the growth of the New Departure Co. from its start in a small rented shop, 10 by 20 feet.

ELEVEN years following his managership of thc Meriden plant he becomes works manager of all plants.

IN 1890, Charles M. Gearing, now general works manager, New Departure Mfg. Co., Bristol, Conn., began his active identification with the development of that company. As noted in STEEL, Sept. 3, Mr. Gearing was appointed general works manager to the company's three plants effective Sept. 1, superseding his former capacity as division manager of the Meriden, Conn., works of the company.

Mr. Gearing was born in Bridgeport, Conn., until 14 attended the public schools of Thomaston, Conn., had his first job for three years with the Seth Thomas Clock Co., and during his entire life has lived and worked in Connecticut.

His association of 41 years with the New Departure company was not successive, but began in 1890 at a time when the company manufactured door bells in a space 10 x 20 feet, rented from the H. C. Thompson Clock Co., on Federal street, Bristol, Conn. Later he entered the employ of the Waterbury Clock Co., and following successively, with E. Ingraham Co. and Dunbar Spring Co.

However, because of his long experience in precision manufacturing, Mr. Gearing was re-employed by the New Departure Co. in 1909 to take charge of the grinding and assembling departments in the inauguration of the manufacture of the double-row ball bearing. Then followed appointment to divisional managership of the Elmwood plant in 1913; appointment in a similar capacity of the Meriden plant in 1920; now managership of the New Departure three plants.

Mr. Gearing's wide experience in the production of ball bearings has been most helpful to his successful management. His interest in employes' welfare has won for him a reputation for popularity and fairness.

Listed among his memberships are affiliation with the American Society for Steel Treating, American Society of Mechanical Engineers, the Hartford Engineers club, and several social clubs. His recreation is golf.

E. E. STONE, for 41 years general purchasing agent for American Steel & Wire Co., Cleveland, and one of its predecessors, retired Sept 15. He also was a director of the company. Mr. Stone's entire business life was spent in affiliations with Braddock Wire Co., Consolidated Steel & Wire Co., and later American Steel & Wire Co. A dinner was given in his honor at the Union club, Cleveland, Sept. 30.

J. N. Fleming, formerly Cleveland district purchasing agent, has been named as general purchasing agent to succeed Mr. Stone.

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T. O. Duggan, formerly merchandising service director, National Standard Parts association, has joined Thompson Products Inc., Cleveland, as merchandising director.

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M. A. Metzger, general superintendent, Standard Forgings Co., East Chicago, Ind., has resigned, and is being succeeded by his assistant, C. S. Swanson.

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O. F. Stroman is industrial sales manager of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., under whom the industrial sales department of the company is being reorganized. Two assistant sales managers and 14 divisional managers have been appointed, and the new organization also provides for the grouping of specialized engineers with every sales division.

Mr. Stroman, a native of Buffalo and graduate of the Perkins School of Electricity, has been with Westinghouse since 1903. A year after he completed an apprenticeship course at East Pittsburgh and was given charge of one of the company's experimental departments. From 1906 to 1909 he was a member of the power sales department and then joined the industrial sales department. In 1912 he was made assistant to the manager and held that position until 1926 when he was ap-

pointed motor apparatus manager. His recent appointment as sales manager, followed the realignment of the industrial department as to sales and organization policies.

Bernard Lester and C. B. Stainback have been appointed assistant sales managers. Mr. Lester will have general charge of directing from headquarters the development of business with industrial users of electrical equipment. Mr. Stainback will have charge of apparatus applying to these industrial groupings.

Mr. Lester has been with the Westinghouse company since 1905. He is a native of England, and graduated from Haverford college in 1904 and previous to his association with Westinghouse was in the engineering department of the Jones & Laughlin Steel Corp.

Mr. Stainback was graduated from North Carolina State college in 1910. After completing the Westinghouse apprentice course he entered the contract section of the industrial department in 1912. In 1920 he was made manager of the industrial contract section. In 1926 he was appointed section head of the medium D. C. motor section and held that position until his latest appointment.

Under Mr. Lester there have been created five industry divisional classifications with the following in charge; G. E. Stoltz, manager, mining and metal working electrification division; G. D. Bowne, manager, general mill electrification division; J. W. Speer, manager, machinery electrification division; E. B. Bremer, manager of the appliance electrification division; and E. F. Mead, manager, general industrial resale division.

Nine divisions have been created under Mr. Stainback's supervision. They are headed by J. R. Olnhausen, manager, medium A. C. motor section; R. M. Davis, manager, medium D. C. motor section; R. O. Watson, manager, large motor section; D. H. Byerly, manager, small motor sectioni; W. W. Reddie, manager, welding section; T. C. Kelley, manager, industrial heating apparatus; W. G. Balph, manager, safety switch section; W. H. McGillivray, manager, control section; and F. W. Horst, manager cost section.

J. M. McKibbin Jr. has been appointed manager of the promotion and advertising section and will function under the joint direction of the assistant sales managers.

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H. J. Stewart, purchasing agent, L. A. Young Spring & Wire Co., Detroit, was recently made president of the Purchasing Agents association, Detroit. L. G. Auberlin is executive secretary.

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R. B. Kite has been appointed manager of the Philadelphia district of the Hoist and Crane division of Robbins & Myers Inc., Springfield, O. His office will be located at 401 North Broad street, Philadelphia.

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George H. Malony has been elected secretary of Whitman & Barnes Inc., Detroit, to succeed J. I. Holton, resigned.

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Paul G. Leoni, president, William H. Muller & Co. Inc., New York, iron and ore importers, will observe his twenty-fifth anniversary with the William H. Muller interests, Oct. 15.

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E. B. Currie has been appointed sales engineer for the General Electric Co., at Buffalo, replacing L. R. S. Climie who has been transferred to the company's Rochester, N. Y. office.

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Harry L. Erlicher, formerly assistant purchasing agent, General Electric Co., Schenectady, N. Y., has been appointed purchasing agent succeeding L. G. Banker, who retired Oct. 1 after completing 43 years service with the company.

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H. A. Weber, formerly assistant district sales manager at New York for the Weirton Steel Co., Weirton, W. Va., has been appointed district sales manager, succeeding H. M. Easton, deceased. Mr. Weber has been connected with the Weirton Steel Co. for the past seven years.

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R. L. Sauer and M. L. Cornelius have been appointed district managers at Detroit and Cleveland, respectively, for Riley Stoker Corp., Worcester, Mass. F. E. Fleming, I. W. Lachman and W. J. Ehmer have been named sales engineers at Chicago, New York and Philadelphia, respectively, for the company.

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Albert E. Grover, for the past three years cost consultant for the National Machine Tool Builders' association, is returning to independent cost consulting practice, specializing on the foundry and machine shop field. In addition to accounting firms, Mr. Grover formerly was associated with the Geneva Metal Wheel Co., Geneva, O., and the Dunham Co., Berea, O. He will maintain headquarters at Berea, O.

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Walter Scott, assistant manager, metallurgical department, Republic Steel Corp., Youngstown, O., has been made superintendent of the bessemer plant. Joseph P. Welsh has been named superintendent of the blooming and bar mills, same division. Edward Mandry has been transferred from Massillon, O., to Youngstown, as safety supervisor, taking the place of E. R. Rose, now director of employment, Youngstown district. Changes were effective Oct. 1.

Obituaries

WILLIS A. SLATER, 54, research professor of engineering material and director, Fritz engineering laboratory, Lehigh university, Bethlehem, Pa., died Oct. 6. He was a recognized authority in structural engineering research and in the field of reinforced concrete. His society memberships were numerous.

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Irvin S. Berkmann, 54, president, Berkmann Mfg. Co., Chicago, metal specialties, died Oct. 1. Mr. Berkmann founded the business in 1915.

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Frederick von Hiller, 58, district sales manager, structural division, at Philadelphia for Bethlehem Steel Co., died Oct. 4. Formerly with Pennsylvania Steel Co., Harrisburg, Pa., he entered the employ of the Bethlehem company when this company was acquired in 1916 and represented the latter in Mexico City before coming to Philadelphia.

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Benjamin D. Coppage, 59, engineer and inventor, died Oct. 7 at Wilmington, Del. He started his career as an engineer with the Baldwin Locomotive Works. Later he was associated with the Pusey & Jones shipyards and the du Pont interests at Wilmington. He was the inventor of the criss-cross ball bearing and other devices.

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Washington Balkwill, 82, for many years associated with the Cleveland Steel Casting Co., died in Cleveland, Oct. 5. With N. P. Bowler he organized the Cleveland Steel Casting Co. in 1892 and about the same time started the Standard Car Wheel Co., Cleveland. Later Mr. Balkwill took over the management of the Cleveland Steel Casting Co. In partnership with George C. Lucas he formed the Cleveland Frog & Crossing Co., Cleveland. Mr. Balkwill continued active in both companies for many years, retiring about 12 years ago, when he was succeeded by his son, George W. Balkwill. He was a member of the National Founders association, a charter member of the Steel Founders' Society of America and also a member of the American Iron and Steel institute.

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Edward C. Fuller, 78, formerly assistant to the first vice president of the United States Cast Iron Pipe & Foundry Co., now the United States Pipe & Foundry Co., died at his home in Columbus, O., Oct. 4. For many years Mr. Fuller bought pig iron for the United States company, and he was widely known for shrewd buying, placing 25,000 to 50,000 tons at a time and usually at the bottom of the market.

MIRRORS of MOTORDOM

DETROIT

LONG absent from the steel market, the Ford Motor Co. last week placed a fairly sizeable tonnage of steel with outside mills for its coming model.

Though the order at present is held on mill books, a good proportion of the tonnage is expected for release the latter part of October or early November. For the present, a small volume of material has been specified out for about 1000 jobs of the new revised model A's which, largely for experimental purposes, are to be built in October.

Of especial import solely because of the fact it was a purchase, this Ford order perhaps is occupying more attention than a much larger lot placed ten days ago by the Chevrolet division of General Motors for the 1932 Chevrolet lines and which the steel mills will roll late this month. This order, for bars, strips and sheets largely, was the best specification the mills have received from any of the motor makers in many months.

Production Still Sliding

In the meantime, 1931 wears on with weekly production at automobile plants continuing its orderly recession. Last week, 30,000 units were assembled; the week before, 32,200; the week before that, 39,100.

That such declines cannot be uninterrupted before the turn of the year lies in the apparentness that sometime between now and Jan. 1, 1932, there must be a month or so of expanding automobile production, comprised of production of 1932 models for dealer stocking.

Rumor, entirely such, has been circulated that National Steel Corp. subsidiaries have received an order from Ford for between 100,000 and 125,000 tons of sheets and strip. While it is true that National is now receiving a fair-sized division of whatever Ford places, such a tonnage, at the rate of one-sixth of a ton of sheets and strips to a unit, would produce about 750,000 automobiles.

Not only would such a large lot of steel not be placed with one source of supply but also the automobile maker does not definitely contract at one time for material for so many units even in prosperity. The Ford order alluded to previously, while unstated in size, was allocated among several steel mills and in total called for a lot nearer the 100,000-ton figure with the last zero left off.

Activity at Great Lakes

The local Great Lakes Steel Corp. mill, division of National Steel Corp., continues to run with three open hearths, though an increase is expected this month.

Next door to its plant, the Murray Body Corp. is rapidly completing its new frame-manufacturing plant, installed some of the first machinery last week, and on completion will find itself in the backyard, so to speak, of a steel supply source. Great Lakes, in addition, shared substantially in the recent Chevrolet order.

Some indication of how its coming winter's operations are anticipated lies in the recent and continued movement of pig iron from the Buffalo stacks of the Hanna Furnace Co. by water to be stocked cold at the Hanna property on Zug island, near Detroit.

This iron will be largely for merchant sale in this district, thus leaving the two Hanna Furnace blast furnaces here presumably free for the production of hot metal for the Great Lakes open hearths.

Water shipments of steel are drawing to a close for the 1931 season. About a month—six weeks at the outside—remains for free clearance on the Great Lakes to water shipment of scrap, pig iron and finished steel products.

The movement of rolled steel by boat from the Illinois Steel Co. to the Chevrolet plant will receive a spurt late this month when Chevrolet swings into production and calls for steel. Bethlehem Steel Co. is shipping about on the average of a mixed boatload of rolled steel a week from Lackawanna into Detroit and Chicago.

As referred to in this magazine's market reports last week, an unusual movement of scrap shipment by water has occurred from Fairport, O., to the Mahoning valley.

By some deviation or oversight, the rail rate from Fairport to the Valley is 76 cents, the rate from Cleveland, Ashtabula, and all other Lake Erie ports to the Valley is $1.89. This wide discrepancy existed for a time before anyone realized that scrap could be taken from Detroit, Chicago, Duluth, and other points to Fairport, shipped into the interior furnaces much cheaper than through any other port.

Week before last a former ore-carrier rigged up with a traveling crane took a boatload of scrap from Detroit to Fairport, thence by rail to the Youngstown Sheet & Tube Co. plant. Now there appears to be a concerted movement afoot to ship as much scrap as valley mills will take by water-rail through Fairport before next month when the 76-cent Fairport-Valley rate is corrected to be $1.89.

Sporadic Assembly at Ford

Ford Motor's Dearborn activities are concerned with desultory assembly. Week before last the lines worked only two days; last week a continuation of such activity was experienced.

The open-hearth department is closed, as are the rolling mills. The new 400-ton open hearth, started last spring is rapidly nearing completion.

Ford still is undecided over the

use of corrosion-resistant steel for the coming model. Experiments are being carried forth on parts, formerly corrosion-resistant, now with copper base, mild steel base, and other varieties. Decision is likewise withheld on whether or not the new Ford is to have its characteristic radiator shell of corrosion-resisting steel.

Chevrolet still has some of its departments down for inventory. Its Saginaw, Mich., foundry was closed last week and its local forge plant will resume Oct. 19.

Of all motor makers preparing for the assault on the buyer's dollar through the medium of new, attractive models for the January shows, perhaps Chevrolet is the least undecided at this writing as to what to offer.

Steel has now been largely placed for the Chevrolet initial production run. The parts in some instances are heavier, the transmission will be revised, but about the only striking revision in appearance will be in a new front radiator covering to replace the screen grille work of the 1931 model.

After testing a wide variety of steels and stamping operations, the new shell will be a one-piece stamping with vertical slots.

Buick Resumes Slowly

Buick resumed slowly on its new model Oct. 5 after a full month shutdown in September for inventory purposes.

Olds, still a six, is counted on to offer a model varying widely from its present style. In part it is likened to those units now offering streamline body and the new Olds is known to be in for a rather complete "dressing up" in 1932.

Incidentally, Fisher Body has 47 new body length dies for the General Motors lines. In keeping with this column's early-summer prediction that the General Motors lines would be completely refurbished this year, a variety of wheelbases will be offered in each of Chevrolet, Cadillac, Olds, Oakland, Pontiac, and the rest.

Though registrations have fallen off and production last week further tapered, Plymouth lays claim to the intention of making 14,000 cars in October, the same number as September.

Floating power has been repeated for early introduction on other Chrysler lines, no doubt the DeSoto and Chrysler 6's first.

The Dodge-Chrysler foundry having been closed since Sept. 23 for a presumable three-week period, now has an indefinite reopening date. The forge shop was closed the same day and is still inactive.

The Dodge Jefferson avenue plant worked until Oct. 6, then closed for the rest of October.

Chrysler is not ordering much steel

(*Concluded on Page* 53)

Here and There in Industry

PRATT & WHITNEY CO., machine tool manufacturer, a wholly-owned subsidiary of Niles-Bement-Pond Co., has bought the business and assets of the Keller Mechanical Engineering Corp., Brooklyn, N. Y., manufacturer of die sinking machinery and electrical equipment for machine tool control. Operations will be transferred to Hartford, Conn., and consolidated with the plant of the Pratt & Whitney Co. Cash and stock in the purchasing company were the consideration in the sale.

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Jones & Laughlin Steel Corp., Pittsburgh, will move its New York office Oct. 17 from 165 Broadway to the nineteenth floor at 500 Fifth avenue.

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Patterson Foundry & Machine Co., East Liverpool, O., has opened an office in the Rialto building, San Francisco, in charge of Edgar S. Browning as district manager.

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Standard Steel Car Corp., Pullman-Standard Car Export Corp., Osgood Bradley Car Corp. and Steel Car Forge Corp. have removed their New York office to 52 Vanderbilt avenue.

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Farrel-Birmingham Co. Inc., Ansonia, Conn., has arranged to manufacture machinery and forgings for the D-N Incinerator Co., Winston-Salem, N. C., giving the latter a steady source of supply.

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Dunbar Engineering Co., New York, sales representative for the Edward Valve & Mfg. Co., East Chicago, Ind., has opened an office in the Witherspoon building, Philadelphia, under management of Lee W. Tremblay.

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United Platers, Detroit, recently incorporated, is the result of the purchase by the Motor City Plating Co. of a number of plating concerns, including the Enterprise Plating & Mfg. Co., Detroit. Operations will be concentrated in the plant of the Motor City company on Madison avenue. Automotive products will be specialized in. Glenn Friedt is president of the new concern, James C. Nankerv is vice president. V. B. Arnold secretary and H. E. Adelsperger treasurer.

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Cincinnati Car Corp., Cincinnati, will reopen its plants soon for the manufacture of street cars after being closed two months. Clinton E. Morgan, president of the company, has been made receiver.

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Canton Culvert Co., Canton, O., has received from the division of highways of Pennsylvania a contract for corrugated galvanized metal culverts to cost more than $500,000. It calls for about 700,000 lineal feet of culvert, about 130 miles, in 12 to 48-inch diameters.

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Fairbanks, Morse & Co., Beloit, Wis., are transferring to the Beloit plant several lines of pump and electric motor manufacture from branch plants at Three Rivers, Mich., and Indianapolis. This is to take advantage of foundry and assembly facilities at the Beloit plant.

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C. K. R. Mfg. Co. has been formed at Cleveland by merger of the J. F. Rittenhouse Mfg. Co., Akron, Ind., Cronk & Carrier Mfg. Co., Canton, O., and the F. E. Kohler Co., Canton. E. B. Branning, manager of the Rittenhouse company, has been made general manager of the new company, with offices in Cleveland.

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Marks Perry Steel Corp. has been formed at Detroit to carry sheet and strip steel for warehouse and mill deliveries. It has opened offices and warehouse at 300 South Artillery avenue. Leo H. Marks is president, Dare E. Perry secretary and treasurer, and Mort I. Marks vicce president.

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Rockford Screw Products Co., Rockford, Ill., has been licensed by the Dardelet Threadlock Corp., New York, to manufacture and sell bolts, nuts and screws threaded with the Dardelet self-locking thread. Similar licenses recently have been granted to William Gaskell & Son, Brooklyn, N. Y., Harrison Bolt & Nut Co., Harrison, N. J., and Standard Pressed Steel Co., Jenkintown, Pa.

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Charles H. Wehner and Spencer S. Swasey have started in business at 2142 Railway Exchange building, St. Louis, and will merchandise new and used machinery and equipment, including locomotive and other cranes, locomotives, cars, shovels, hoists, turbines, motors, generators, compressors, diesel oil engines, power plant machinery, tractors and other equipment.

Fairchild Aerial Surveys

BEAMS FROM BROADWAY

NEW YORK

THE Lights of Old Broadway," made famous in song and story, are by no means the most indispensable illuminants to New York. More important are the twinkling little flashes, bobbing about waters in the harbor and approaches, often accompanied by bells, gongs and whistles. For they are the buoys, guarding waterway traffic lanes through which pass millions of tons of freight and thousands of passengers who annually go down to the sea in ships.

Floating about, yet firmly anchored by great cast iron sinkers, are more than 2000 tons of steel from which shipping is signaled and directed within a radius of 10 miles from the Battery. There's romance in buoys, be they silent or pierce fog and gale with loud whistles, clanging of bells and needle-like synchronized flashes of light.

Few structures constructed of steel submit to such a severe test, proving the value of that metal. Battered day and night, by wind and gale, tide, ice and nature's most cruel weapons, only steel stands the crushing pressure. Also in this field, steel finds increasing use. Wood spar buoys are steadily being replaced by steel nun and can buoys, wood being more easily splintered, broken and more subject to attacks of elements so potent in salt water.

Steel the Base Material

There is a considerable number of buoys, but they may be grouped as types and classes in a general way as can, nun, whistle, bell and acetylene gas buoys, the latter often having a bell or whistle in addition to the light flash. All are built of steel. They weigh from 11 tons, exclusive of lantern and gas tanks for the largest type of acetylene-gas bell buoy to about 700 pounds, smallest type of third class nun and can buoys.

Plates, structural shapes, steel pipe, small tubing, tank steel, rivets, and iron and steel castings are used in manufacture. Moorings require hundreds of tons of large-size chain. Appendages, bells, lanterns and whistles take a substantial tonnage of various metals.

Largest Buoy Is 20 Tons

Tossing with tide and waves off the entrance to Ambrose Channel, the ocean gateway to New York, is the Grand-daddy of all buoys, a great chunk of steel weighing 20 tons, exclusive of gas tanks and appendages which alone weigh more than 2 tons. This buoy is the largest in New York waters and is of a size now less frequently built.

The rivet retains its favor with the lighthouse bureau. Welded construction is utilized for many can and nun buoys and smaller units, but for the big fellows, they demand the rivet. The larger buoys, bell and whistle, are anchored in the danger spots, the most strategic positions. Only a small section of buoy is seen above water, some of the largest being 39 feet over-all, exclusive of lantern which looms up several feet higher.

Length of mooring chain naturally depends upon depth of water, but in general two and one-half to three times as much chain is required for each buoy as compared with the depth at the point of anchorage. Some of this chain for the larger buoys and light ships has links 2 inches thick. Some interesting and new developments are in the experimental stage for the heavier types of chain.

Staten Island, headquarters for the third district, light-house bureau, is also a supply and buying depot for the Atlantic coast, with Supt. J. T. Yates in charge. The light-house service has a tradition of its own, discipline is rigid and the burueau's men on the job from the superintendent down are organized as a military or naval unit. Supt. Yates is responsible for many details and improvements in buoys, fixed lights and other special setups.

Hardly a day passes without a casualty among the buoys in New York harbor, where traffic is heavy. Collisions, floating debris, ice and constant pounding of water cause surprising damage despite rigid inspection as to materials and workmanship.

Once a year every buoy in the third district, from Narragansett Bay to Cape May, is pulled from the sea by a tender's crane and taken to the Staten Island base for repairs and painting. Many of them arrived badly battered, dented, cut and without paint. When possible, they are hammered out, chipped and painted. Some require new plates, rivets, angles and parts. Others are so badly smashed as to rate an easier berth where the pounding is less severe. Ice is the worst enemy to these floating steel structures. For this reason, replacement is fairly heavy.

Roll Gas Tank Steel

With the service being constantly expanded, buoys and fixed lights offer a steady and increasing consuming demand for highest grades of steel. Running time of acetylene flashing buoys is four months, the gas flow being regulated by valves.

Some operate a year without refilling of gas tanks. For many years gas tank steel was imported, but with the coming of the war, shutting off the source, steel and tank makers in this country took up the task and have developed a steel gas tank of superior quality, better than what was formerly imported.

There are 2000 aids to navigation in the third district, which embraces New York harbor. Of this number, mostly buoys, 25 per cent are within a radius of 10 miles of Manhattan. It may be readily seen that a considerable number of "spares" must be shuffled by the lighthouse officials. When a buoy is hauled out for repairs, the danger spot must still be guarded and a spare takes over the task.

Spares Always Ready

In case of a wreck or sinking of a ship in or near a waterway, the scene of the accident must be immediately buoyed. Supplies on hand at all times are rushed to the spot and shipping warned off by buoys. For this purpose, several special types have been constructed by Supt. Yates of the Staten Island station. They remain in place until the wreck is removed as a hazard to marine transportation.

During the last few years more than 1000 wooden spare buoys have been replaced by steel, mostly can and nun. The advantage is twofold. First, the steel buoy stands up better. Again, the differences in shape of the buoys aid in navigation where formerly color played greater part, a handicap in darkness. Now a skipper coming up through narrow Ambrose channel, if he crowds near enough, can make out the type of buoy more easily, following his course with cans on the starboard and nuns to port.

Bells on bell buoys weigh from 1000 to 225 pounds, 80 per cent ingot copper and 20 per cent block tin. All structural steel is of open-hearth steel of uniform quality. Plates must conform to standard specifications for flange or fire-box steel.

Building Groups Organize League

NINETEEN groups of the construction industry, with over 100,000 members and representing "billions" in capital, have formed an alliance "to co-operate for the common good of the industry and better to serve the nation," the American Insitute of Architects, New York, announces.

Robert D. Kohn, of New York, president of the institute, is general chairman of the provisional organization, known as the Construction League, to be incorporated in the District of Columbia and maintain headquarters in Washington. The number of member associations will eventually be increased to 35.

Other officers have been named as follows: First vice chairman, Francis L. Stuart, New York, president, American Society of Civil Engineers; second vice chairman, A. P. Greensfelder, St. Louis, president, Associated General Contractors of America; treasurer, H. H. Sherman, Boston, president, Producers' Council; general secretary, P. W. Donoghue, Washington, national president, National Association of Master Plumbers of the United States.

A joint secretariat will be composed of: E. J. Harding, Washington, managing director, Associated General Contractors of America; E. C. Kemper, Washington, executive secretary, American Institute of Architects; L. W. Wallace, Washington, executive secretary, American Engineering Council.

19 Groups on Roster

The list of organizations represented in the new combination follows:

American Engineering Council, American Federation of Labor, building department, American Institute of Architects, American Institute of Steel Construction, Associated General Contractors of America, Contracting Plasterers' International association, Electrical Guild of America, Heating and Piping Contractors National association, International Cut Stone Contractors' and Quarrymen's association, International Society of Master Painters and Decorators, National Association of Builders' Exchanges, National Association of Building Trades Employers, National Association of Marble Dealers, National Association of Master Plumbers of the United States, National Association of Ornamental Iron and Bronze Manufacturers, National Association of Sheet Metal Contractors, National Committee of Building Congresses, Producers' Council, and United Association of Journeymen Plumbers and Steam Fitters.

The Business Week In Washington

GROWING discontent of industries with inhibitions of the anti-trust law, which business men in many lines of activity declare operate to create cycles of overproduction and ruinous prices, to say nothing of a waste of the resources of the country, is making itself felt among congressmen and may result in modification of that 40-year old statute at the next session of congress," declares J. F. Callbreath, secretary, American Mining Congress, Washington.

□ □ □

The United States Supreme Court convened Oct. 5 after a four summer months recess.

□ □ □

If conditions grow worse, Representative Fish of New York is in favor of price fixing, he has announced.

□ □ □

Senator LaFollette, of Wisconsin, has said that he will press for a large public building program at the coming session of congress.

□ □ □

The survey of current business of the department of commerce states that the autumn seasonal pickup in business has been slow this year.

□ □ □

Trade between the United States and Latin American countries fell off 30 per cent last year, according to the department of commerce.

□ □ □

During the first quarter of the present fiscal year ending Sept. 30 income and corporation taxes were $241,000,000 behind the same period of last year.

□ □ □

Tariff commission has set Oct. 28 as the date for a hearing on the tariff on copper ore, to determine the difference in production cost at home and abroad.

□ □ □

Representative Wood of Indiana, chairman of the house appropriations committee, would reduce salaries of all government employes getting above $2500 per year 10 per cent.

□ □ □

Youngstown Sheet & Tube Co., Youngstown, O., has filed a claim in the court of claims for $53,875, alleged overpayment of income and profit taxes for 1922.

□ □ □

United States Steel Corp. has been granted a drawback on galvanized sheet and wire products using, among other imported materials, sal ammoniac.

□ □ □

President Hoover is said to have "heartily approved" a 6-hour day in the chemical industry as a means of spreading employment and an effort is being made to regard this as approval by the Hoover administration of a short work week.

Four Billions for Building?

In the year beginning with October, 1931, building construction totaling $4,000,000,000, equivalent to $5,000,000,000 in 1929 dollars, is forecast by the National Building Press Group, New York. For the first six months of this period construction is estimated at $1,850,000,000 and for the second six months $2,150,000,000.

EDITORIAL

Again Our Banking System Proves Inadequate

SHORTLY after the bubble of speculation burst in 1929 numerous authorities on banking and finance took elaborate pains to reassure the public that the depression—then in its early stages—would differ from many of its predecessors because of the abundance of money in the country. In the opinion of these experts the position of the banks with the strong Federal Reserve system behind them would prevent a credit stringency.

Unfortunately this prediction has proved false. Today it is common knowledge that while there is an abundance of money, much of it is not available for use. The volume of funds tied up in "frozen assets" is so great that we are faced not only with serious credit stringency but also with a general lack of confidence which finds expression in hoarding and in other practices which if continued without restraint would rapidly create an acute crisis.

To halt this threatened collapse of confidence the President of the United States, working in harmony with prominent bankers and leaders in congress, has proposed a plan to release dormant funds and put them to useful work.

For Century Each Major Crisis Has Led To Banking Reform

"The difficulty," according to the President's statement, "is a diffusion of resources, and the primary need is to mobilize them in such a way as to restore in a number of localities the confidence of the banker in his ability to continue normal business and to dispel any conceivable doubt in the minds of those who do business with him."

Stated briefly the President's program provides for an emergency institution formed by bankers to rediscount banking assets not now acceptable to the Federal Reserve system; for cooperation of bankers in each Reserve district whereby they will take over some of the assets of closed banks so that payment of some dividends to depositors may be facilitated and hastened; for an appeal to congress to authorize broadening of the eligibility provision of the Federal Reserve act in order to afford greater liquidity to bank assets; and for the creation of a finance corporation similar to the War Finance Corp., in case such an organization later becomes necessary.

It is readily apparent that this plan is intended not only to provide certain important first-aid remedies but also to make permanent changes in the nation's financial structure. The suggestion that the eligibility of paper for Federal Reserve discount be broadened is in line with demands which have been emanating from certain quarters for many years.

System Permitting Prompt Adjustment To Changing Conditions Needed

The President's action will go far in confirming the idea that sooner or later in every depression the key of many of the current difficulties is to be found in the nation's banking machinery. History shows that every acute period in the United States during the past century, with one possible exception, has been followed almost immediately by important changes in the monetary and banking system.

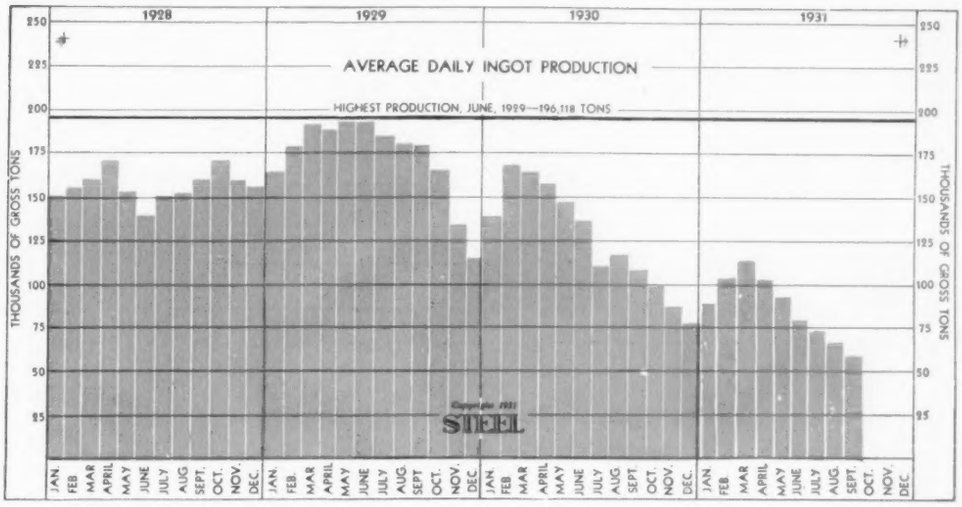
The panic of 1837, caused largely by land speculation and the absence of a national bank, was followed by an unsuccessful trial of a state banking system. The crisis of 1857, due again to speculation and heightened by the lack of adequate banking laws, led indirectly to the establishment in 1863 of a national banking plan. The panic of 1873 was followed by banking reforms and in 1879 by the resumption of specie payments.

Following the distress of 1893 the silver purchase clause of the act of 1890 was repealed, the government negotiated with the house of Morgan for gold and other banking correctives were applied before order was restored. The 1907 panic resulted in the passage in 1908 of the Aldrich-Vreeland bill designed to increase the elasticity of national bank note issues and later in formation of the Federal Reserve system.

Thus the monetary and banking machinery has been taxed time and time again throughout a century of industrial and commercial development, and each time it has been proved inadequate. In view of this consistent experience over such a long period, is it not evident that our method of making banking laws is faulty?

It would be better for industry and for the nation as a whole if our banking system could be made more flexible. It should not be necessary to rely on a severe depression to force belated revisions in banking legislation.

THE BUSINESS TREND



1930	
Sept.	109,245
Aug.	117,722
July	112,393
June	136,741
May	147,515
April	158,057

1931	
Sept.	59,523
Aug.	66,133
July	72,544
June	79,843
May	96,365
April	104,711

Confidence Now Is Key To Business Outlook

ATTENTION of the business world is focused on the attempt by the federal administration to release frozen assets of the country's financial institutions. The situation which prompted the President's unusual action is clearly described in the preamble of his statement of last Tuesday night, which in part is as follows:

"Foolish alarm . . . has been accompanied by wholly unjustifiable withdrawal of currency from banks.

"Such action results in limiting the ability of the banks . . . to extend credit to business men and farmers for the normal conduct of business, but beyond this to be prepared to meet the possibility of unreasoning demands of depositors the banks are compelled to place their assets in liquid form by sales of securities and restriction of credits so as to enable them to meet unnecessary and unjustified drains."

Greater Flexibility in Credit Plan Should Help Industry

This is exactly the situation referred to in this column in the issue of Oct. 1 as "undermining confidence more than any single factor." No one can expect the President's plan to solve the credit problem completely in all of its ramifications, but it is clearly a step in the right direction. With a large portion of the nation's assets frozen in paper which is not accepted by the Federal Reserve system it is not surprising that many banks have had to suspend or have been seriously crippled. The greater flexibility afforded by the Hoover plan, if given a fair chance, should have a beneficial effect on business.

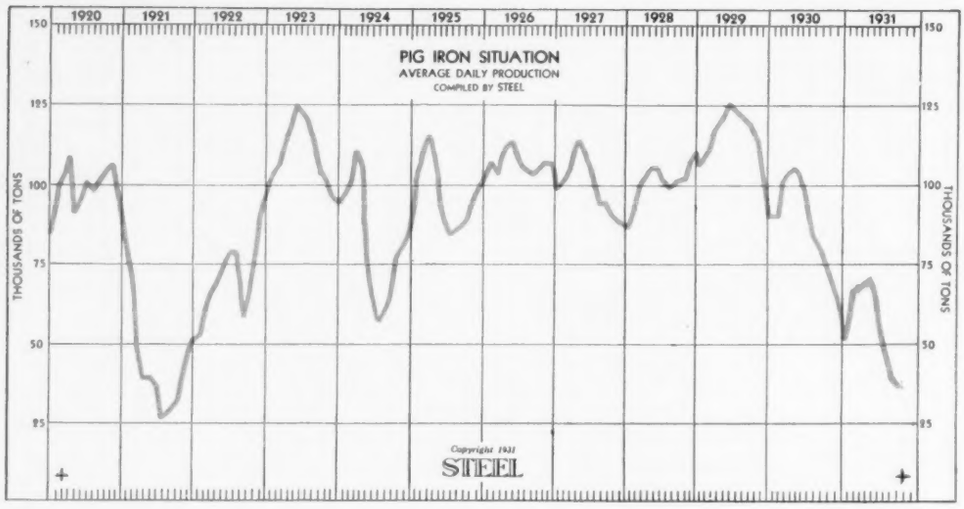
The fact that formation of a federal credit agency similar to the War Finance Corp. is being considered arouses interesting speculation as to the desirability of taking other emergency action not unlike that employed so effectively during the war period. Would it not be better for business to submit to the control of national civilian boards for the period of the emergency than to take a chance on the political meddling that is bound to occur when congress convenes on Dec. 7?

Public Will Face Flood of Remedial Legislation When Congress Meets

Unless business has shown some signs of solving its problems by that date, the country will be faced with the worst flood of half-baked remedial legislation ever loosed upon a troubled public. The time for action is short and the problems are complicated.

Under present conditions business men are more interested in plans for the correction of current difficulties than in the statistical record of industry. The reduced output of pig iron and steel ingots in September, as revealed by the monthly figures just released, simply reflects the extent to which lack of confidence has slowed the wheels of industry.

In spite of the unfavorable statistical record, business sentiment is sufficiently buoyant to realize that once the present cause for uncertainty is even partially removed or corrected, business will respond promptly. Already the signs of a pending improvement in steel demand are more apparent. The country cannot long continue on a basis which calls for only 28 per cent activity in steelmaking.



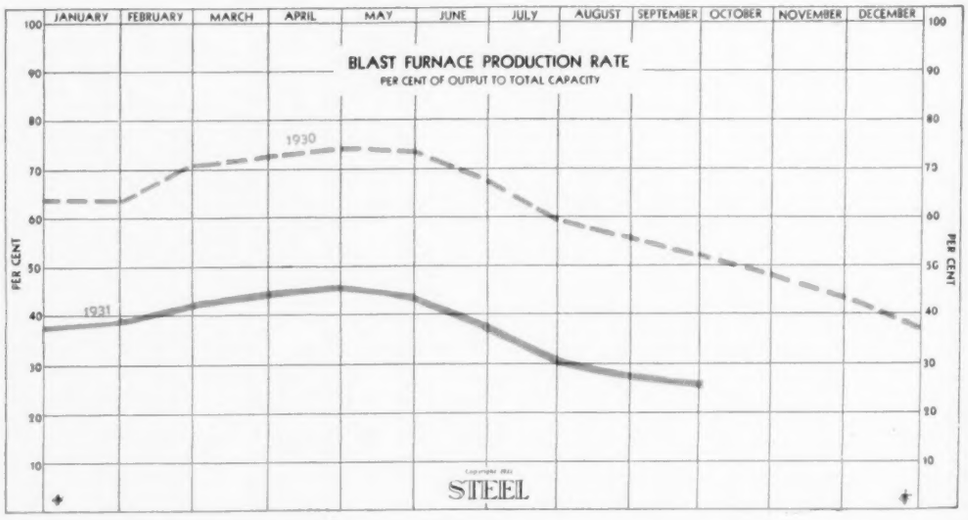
	1931	1930
		Tons
Sept.	38,821	75,893
Aug.	41,264	81,455
July	47,170	85,110
June	54,599	97,817
May	64,355	104,564
April	66,986	106,371

Decline in Pig Iron Production Is Smallest in Five Months

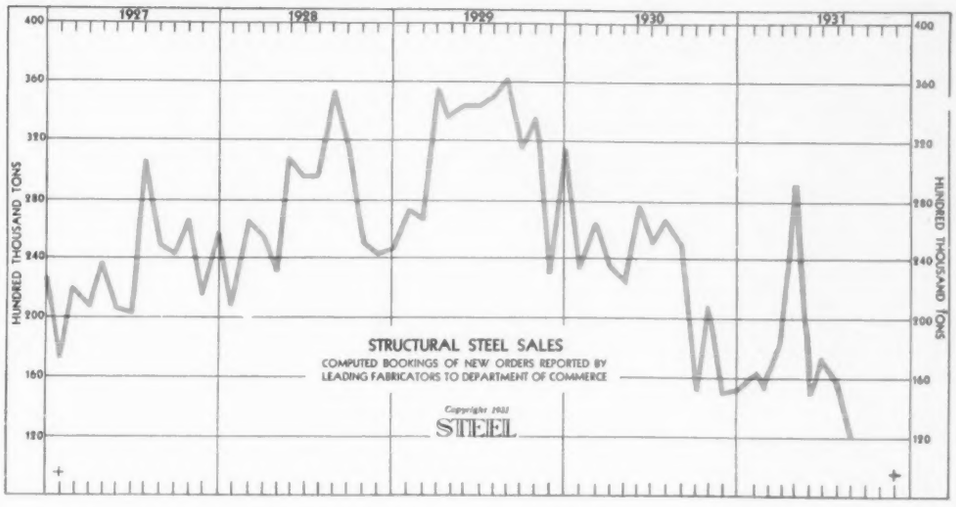
While the output of pig iron dropped 5.9 per cent in September, the decline was the smallest in five months. That production may be nearing the turning point is indicated not only by the diminishing decline but also by the record of stacks in blast. On Sept. 30 the number of active furnaces was 74 as against 75 on Aug. 31. The number of steelworks stacks actually increased—the first time this has happened in six months. Four merchant stacks were blown out or banked and two were blown in. The daily average in September was 38,821 tons, the lowest in ten years. The lowest point in 1921 was 27,892 tons.

Blast Furnaces Operating at 27 Per Cent; More Stacks in Than in 1921

Based on the capacity of blast furnaces worked out by the American Iron and Steel institute, production of pig iron in September was at the extremely low rate of 27 per cent, against 28.7 in August, 53.8 per cent in September last year and 83.3 per cent in September, 1929. In view of the possibility that last month's output may mark the low point, it is interesting to compare the relation of active stacks in 1931 with that in 1921. In July ten years ago 69 of 435 stacks were in blast. In September, 1931, of a total of 303 furnaces, 74 were active. This indicates an improved condition in potential production facilities.



Per Cent	1931	1930
Sept.	27.0	53.8
Aug.	28.7	57.8
July	32.7	60.3
June	37.9	69.3
May	44.7	74.2
April	46.5	75.4
March	45.4	74.5



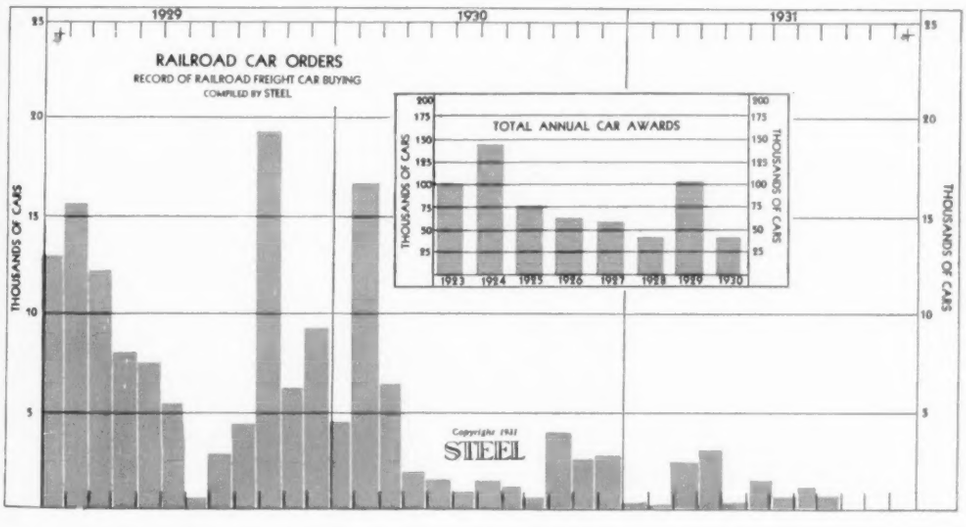
	Tons	
	1931	1930
Aug.	124,400	252,000
July	159,200	270,000
June	177,200	253,600
May	152,800	279,200
April	292,800	222,800

Sales of Fabricated Structural Steel Lower in August

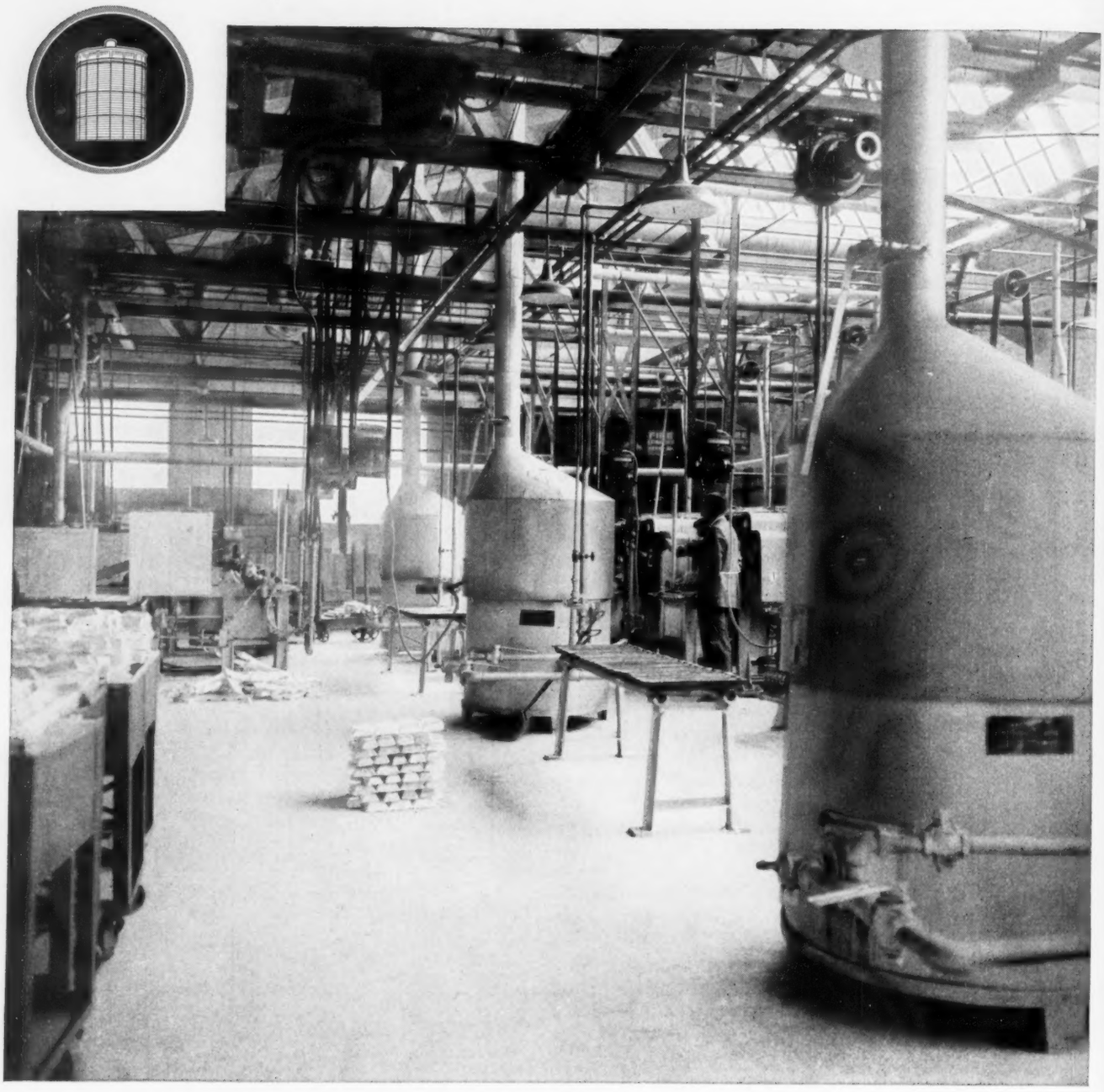
Structural steel sales in August totaled 124,400 tons compared with 159,200 in July, according to reports of leading steel constructors to the department of commerce. The surprising feature of these figures is that the tonnage for 1931 has been running consistently behind that of 1930 except in April, whereas STEEL's record of structural awards (comprising only contracts involving 100 tons or more) shows the 1931 tonnage to be in excess of that of last year. STEEL's figures include some Canadian awards, but this tonnage should not offset the orders under 100 tons which do not appear in STEEL's weekly reports of structural steel awards.

Domestic Awards of Freight Cars Continue in Low Volume

Builders of railroad freight cars booked orders for 503 cars in September, as compared with 1104 in August. Awards for the month were at almost the same level as in September a year ago, when 576 cars were ordered. September bookings are the lowest for that month since 1925. For the first nine months of the present year total awards amounted to 9018 cars, compared with 35,680 in the same period of 1930 and 70,528 in three quarters of 1929. The record of car orders reflects the tendency by most roads to repair or rebuild rolling stock as long as possible before purchasing new equipment. No large car awards are pending.



	1931	1930
Sept.	503	576
Aug.	1,104	1,111
July	367	1,389
June	1,910	998
May	20	1,392
April	2,798	1,997
March	2,166	6,118



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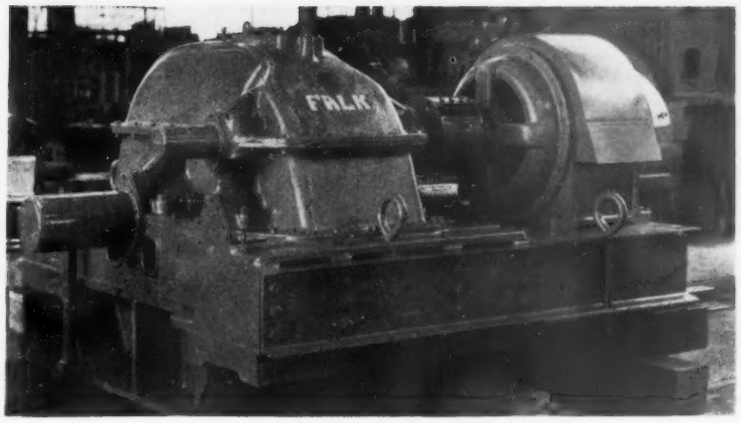


Fig. 1—Special bed plate carrying gear unit and generator of electric regenerative drag

With the gearing, the generator speed is stepped up from 29 to 860 revolutions per minute

Electric Power Is Regenerated By New Roll Train Drag

BY ARTHUR J. WHITCOMB
Assistant Electrical Engineer, Freyn Engineering Co.

ALTHOUGH many improvements are being made to the sheet mill, little has been done towards eliminating the power loss caused by the friction drags used to prevent back lash in the mills. Previous attempts to improve the drags have been unsuccessful because no satisfactory method has been evolved for regenerating the power so that it could be synchronized or paralleled with the plant power system.

A new installation combining the successful regeneration of electric power with the production of a dragging torque which prevents back lash in the mill has been operating successfully for the past three months in a sheet mill in the Detroit district. The arrangement of this installation is shown in Fig. 2 and the equipment itself in Figs. 1 and 4.

The equipment comprises a generator and gear unit mounted on a common bed plate ar-

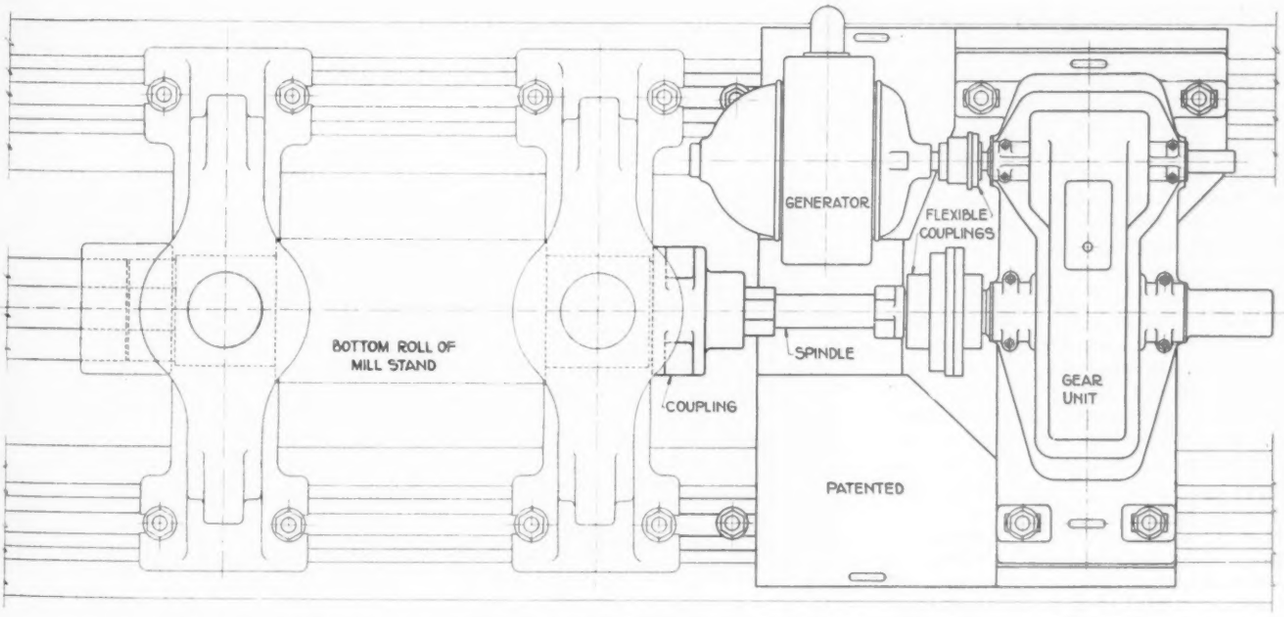


Fig. 2—Arrangement of the regenerative drag in relation to the mill stand is shown in this sketch

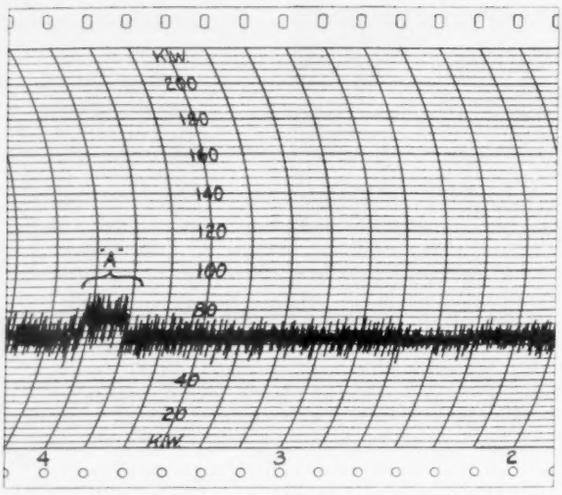


Fig. 3—Chart of power output of electric regenerative drag. The portion designated as "A" illustrates how the dragging torque and power output may be increased by decreasing the secondary resistance

ranged to be mounted on the shoe plates supporting the roll housings. The low speed end of the gear unit is connected to the driven roll at the end of the roll train by means of a special spindle and flexible coupling. The gear unit steps the speed up from 29 revolutions per minute of the roll train to 860 revolutions for the generator.

The generator is an 80-kilowatt 720-revolution-per-minute, synchronous-speed, wound-rotor, induction generator, the power output of which is controlled by means of a secondary resistance. This generator is operated at from 5 to 23 per cent above synchronous speed, depending upon the speed of the main drive motor, the latter varying according to the load.

Constant output is obtained from the generator by varying the resistance in series with the wound rotor of the generator. This is done automatically by means of the control panel shown in Fig. 5, this panel consisting of a primary contactor and secondary contactors controlled by notch-back relays.

Unit Is Compactly Built

The bed plate carrying the generator and gear unit is handled as a single unit and fits into the space occupied by the old-type friction drag. It is coupled to the mill in the same manner as the friction drag.

Starting this equipment is simple. The mill drive is started in the usual manner and as soon as the drive is approximately up to speed, a push button is pressed which causes the primary or stator of the induction generator to be connected to the power supply, in this case the 220-volt 60-cycle mill auxiliary power supply. Inasmuch as an induction generator is excited by the power supply to which it is connected, and the voltage and frequency of the generator are determined by this power supply, synchronizing the generator is not required. Interlocking is provided which prevents the generator from being paralled with the power supply until the mill drive motor is nearly up to speed and for automatically disconnecting the generator when the mill motor is shut down.

In operation, the electric regenerative drag produces a dragging torque which effectively prevents back lash in the mill. The mill on which this drag is used produces high-grade, full-finished automobile sheets on which roll marks are permitted under no circumstances. The dragging torque of the generator can be adjusted so as to be just sufficient to prevent back lash in the mills. The power input to the drag, as required by this particular mill, is approximately 95 kilowatts while the power output of the generator is 75 kilowatts.

Power Output Is Uniform

This power is returned to the mill 220-volt system and if there is not sufficient load on the 220-volt system to absorb this output, it automatically backs up through the transformers on to the high tension system where it is absorbed. A graphic wattmeter chart of the generator output is shown in Fig. 3. As can be seen, the power output is smoothly controlled. The portion of the chart marked "A" illustrates how the dragging torque and power output may be increased by decreasing the amount of secondary resistance.

On the basis of a 300-day year and with the power cost of $0.01 per kilowatt-hour, the actual power regenerated is 540,000 kilowatt-hours and represents a saving of $5400 per year. This power saving alone pays the cost of the installation in short order.

Besides preventing back lash and regenerating the power formerly lost, the electric regenerative drag has other advantages. The friction type of drag requires frequent readjustment due to the wear that takes place in the braking surfaces. Usually the friction is adjusted considerably tighter than necessary so that readjustment will not be required at short intervals. As a result, considerably more drag load, and consequent power loss, is applied than is really required. This adjustment is further complicated by the fact that the millwright has no convenient method of measuring the drag load and consequently tightens the drag until he is sure there is no back lash.

Smaller Dragging Load Applied

Excess load with the friction drag can amount to 200 to 500 per cent of the load actually required. In one case investigated, initial tests made on the mills with the drag given the usual adjustment indicated that a 300-kilowatt dragging load would be required. Tests made to see how little dragging load could be applied and still give satisfactory operation, showed that only 75-kilowatt input into the drag was all that was actually required.

With the electric drag the dragging torque can be adjusted to the minimum required and it will maintain this adjustment without further attention. In addition, the power output of the drag generator can be readily metered which is not true in the case of the friction drag, hence the adjustment of dragging torque can be obtained more accurately. Therefore, it may be con-

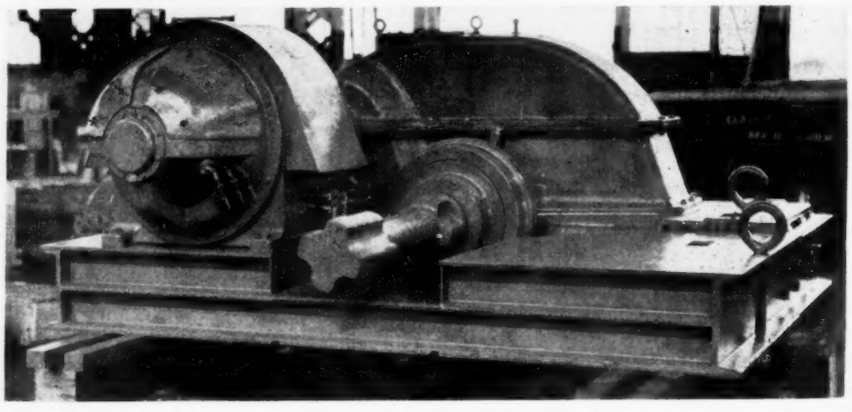


Fig. 4—The gear unit is connected to the driven roll at the end of roll train by a special spindle and flexible coupling

cluded that the electric drag will not only reduce the drag load required because of the ease of adjustment of this torque to meet actual operating conditions but also will regenerate from 75 to 85 per cent of the power used for creating the required dragging torque.

The friction type of drag has a rigid connection between the mill train and the drag producing mechanism, with the result that a certain amount of vibration and chatter is set up. Attempts are made to eliminate this by means of springs incorporated in the drag supports and by spraying water on and applying lubricant to the wearing surfaces. These remedies are inadequate and require constant attention. In the electric drag, the connection between the rotor and stator of the generator is by magnetic flux, which of itself is an excellent cushion, and therefore gives a cushioning action to the drag which has a beneficial effect on the mill operation.

Bearings Only Wearing Parts

Wearing parts on a friction drag comprise the roll and the oak or hardwood timbers which are clamped against it. The timbers require frequent renewal and inasmuch as a certain amount of shaping of the timbers is required to make them fit the roll, this maintenance represents a considerable item of expense. The electric drag has no wearing parts other than bearings, brushes and gears. The only maintenance required is the renewal of the oil supply at infrequent intervals.

The friction type of drag requires considerable water to cool the wearing parts and prevent chatter of the timbers. This water not only represents an item of expense, but gives the end of the mill a sloppy appearance. In addition, the friction drag gives off fumes of burned wood, some smoke, oftentimes steam, and a certain amount of spray, all of which are detrimental to the men working at the end mill next to the drag. There is no annoyance of this kind in the case of the electric drag.

Development of this equipment has extended over a period of time. After making the initial installation over a year ago, it was found that the service to which this equipment would be subjected was much more severe than anticipated, also that there were certain inherent defects in the design. For example, the gear unit is used as a speed increaser rather than a reducer. Increasing the speed through gearing is a rather unusual application, particularly when applied to the load which is characteristic of a sheet mill. After considerable development and research, a new installation was designed which incorporated many special features in the design of the gear unit, couplings, bed plate and generating equipment. The second installation has been an outstanding success. The electric regenerative drag is covered by patents and is being offered to the steel industry by the Freyn Engineering Co., Chicago, Ill.

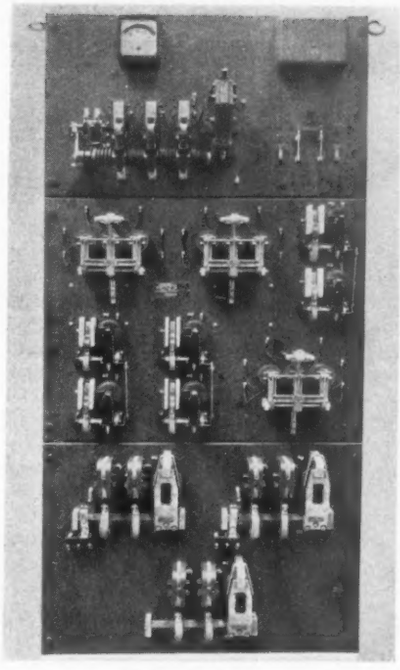


Fig. 5—Control panel used for maintaining constant power output of the drag regenerator

Tool Builders Issue Cost Manual for Machine Shops

Culminating a cost accounting study undertaken 3 years ago, the National Machine Tool Builders' association, 1415 Enquirer building, Cincinnati, is issuing a standard cost manual for machine shops.

When the work was started, Albert E. Grover, Berea, O., was engaged as the association's staff consultant. He immediately set out to assist accountants and executives of member companies in improving and standardizing cost finding methods. During the 3-year period he has studied methods in use, not only in machine tool shops but in other machine shops as well and selected the best methods found for each phase of costing.

Subject by subject, bulletins on these methods were laid before the industry for criticism; they were also discussed by 23 regional and general conferences of accountants and executives. Finally, a text was prepared, edited by three qualified cost executives of the industry and approved for publication.

The manual is a general work which can be used in practically any machine shop. It shows methods for both large and small shops and is thoroughly up to date in its treatment of such subjects as standard costs, machine-hour burden rates, inventory control, operation time control, etc. It will be issued in ring binder form, each chapter being a separate unit, so that as progress is made any chapter can be replaced.

Mr. Grover's work now being complete, he has re-established his office in Berea, O., and will resume his practice for clients requiring individual consultation or installation service, specializing in machine shop and foundry cost practice. At the same time he will continue to serve the National Machine Tool Builders' association in a consulting capacity.

Sheet Metal Distributors In Annual Meeting

Announcement has been made of the program for the thirty-seventh annual convention of the National Hardware Association of the United States and its auxiliaries, the National Association of Sheet Metal Distributors and the Acessories Branch, to be held Oct. 19-22 at the Palmer house, Chicago.

The sheet metal distributors will meet Tuesday afternoon, Oct. 20. The program for this group is as follows:

Opening remarks by the president, F. O. Schoedinger, Columbus, O.
"The Conditions Prevalent in the Sheet Metal Building Products Industry," by J. H. Christman, vice president and general sales manager, Milcor Steel Co., Milwaukee.
"Report of the Sheet Steel Committee," by F. J. McNeive, W. F. Potts Son & Co., Philadelphia.
"Report of the Tin and Terne Plate Committee," by R. H. Lyon, Lyon Conklin & Co., Baltimore. Followed by open discussion of conditions in tin and terne plate distribution.
"The Distribution of Sheet Metals." Open discussion.

Germans Perfect New Rustproofing Process

German manufacturers of hardware and bicycle and automobile parts are using a new process for rustproofing iron and steel, according to a recent announcement of the department of commerce, Washington. The process is called "Atrament verfahren" and consists in phosphatizing the surface of iron, including any manganese content that it may include. It is known also that the articles to be treated are cleansed of rust and oil, then immersed for 1 to 1½ hours in a bath which is held at a temperature of 98 to 100 degrees Cent. Following this treatment the articles are dried and rubbed with mineral oil. The procedure appears to be somewhat similar to the parkerizing process, used extensively in this country.

Services of a completely equipped plant are placed at the disposal of the hardware and automobile manufacturers for rustproofing their products, and stipulated charges are made.

New Carbide Tool Impressive In Test on Nickel Steel

USE of cemented tungsten carbide as a tool material has become rather general in the larger industries today and as an outgrowth of research work on this alloy has come another material known as cemented tantalum carbide. The material is produced in much the same manner as tungsten carbide and similarly the tool tips are copper brazed to steel tool shanks in a hydrogen furnace.

Research work which has been pursued by the General Electric Co., Schenectady, N. Y., in connection with cemented carbides was reviewed at the annual convention of the American Society for Steel Treating in Boston, Sept. 21, by Floyd C. Kelley, associated with the research laboratories of that company. Included in the information given by the speaker were: Physical and chemical properties of tungsten and tantalum; methods of preparing tantalum carbide and cemented tantalum carbide; physical properties obtained by using various binders; and comparative tool tests of tungsten carbide and tantalum carbide.

Adopt Standard Test

To measure the quality of cemented tungsten carbide tools, a standard test has been adopted which consists of a 10-minute run on a 3.5 per cent nickel steel log having a hardness of about 195 brinell at a speed of 70 feet per minute with a $\frac{3}{8}$-inch depth of cut and a feed of 0.055-inch. To afford comparison, therefore, tools of tantalum carbide were submitted to the same test with the results shown in Table I.

The modulus of rupture and hardness of the early tantalum carbide tools were considerably lower than for cemented tungsten carbide tools, and showed conclusively that the properties of a good tool do not depend entirely upon strength and hardness. These tools, in general, could be ground much more easily than cemented tungsten carbide; ordinary grinding wheels could be used and much keener cuttings edges could be obtained.

When cutting nickel steel they maintained their sharp cutting edges under severe working conditions for relatively long periods of time. No signs of wear were in evidence just back of the cutting edge where the chip curls up on top of the tool as is sometimes the case with cemented tungsten carbide tools. The finish on the log was smooth but not burnished, showing that the edge of the tool was cutting and not pushing or tearing off the metal.

A few seconds was required to color up to the same blue exhibited by a chip as it left the cemented tungsten carbide tool. The difference in cutting efficiency was evidenced by the fact that when the limit of speed which could be obtained in removing a certain size of chip was reached with the cemented tungsten carbide tool, it was possible to remove a chip of the same size at a much higher speed with the tantalum tool.

Tool No. 1 showed almost no bluing of the shank just underneath the copper brazed joint and, after removing a chip of 0.050 x $\frac{3}{8}$-inch for 10 minutes, could be held in the hand at the cutting end. A tungsten carbide tool removing the same chip would be discolored about half way down the tool under the joint and would be about as hot at the cooler end as the tantalum carbide tool was at the cutting end.

Tool No. 6 showed a discoloration beneath the joint, but equal to about one-half the distance discolored on the cemented tungsten carbide tool. Later it was observed that the amount of discoloration obtained varied with the binders also.

Cemented tantalum carbide has a lower coefficient of friction than cemented tungsten carbide, which shows up in the amount of power required to remove a chip of a definite size, and also in the amount of heat generated in the tool. The material after firing feels much like soapstone and the low coefficient of friction resulting in lower temperature of operation of the tool undoubtedly accounts for the difference in wear just back of the cutting edge where the chip curls up. It also accounts for the preservation of the sharp cutting edge, for there is seldom any seizure between the material being turned and the tool tip, as is sometimes the case when tungsten carbide is used to cut steel. Under severe cutting conditions it often approaches seizure, but even then the steel which sticks to the sharp cutting edge can be removed without injury to the tool.

Exhibit Long Life

Comparative tests of cemented tungsten carbide and cemented tantalum carbide on 3.5 per cent nickel steel with 0.35-0.40 per cent carbon and a brinell hardness of 219, using a $\frac{3}{8}$-inch cut, 0.025-inch feed and a speed of 180 feet per minute showed that the average life of the cemented tungsten carbide tools containing 13 per cent cobalt as a binder was 15.4 minutes and of those containing 6 per cent cobalt was 26.2 minutes.

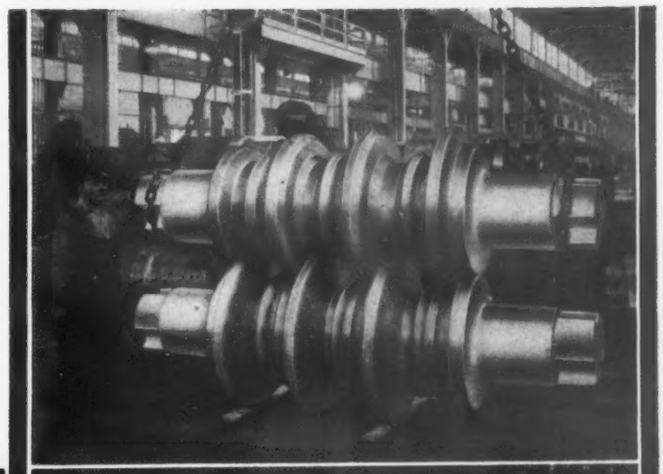
Tantalum carbide tools tested under the same conditions ran up to 40 minutes without any sign of breakdown and looked as if they were capable of turning up the entire log. It was necessary in most cases, to save time and material, to run the tools for 25 minutes, a period about equal to that of the longest average life obtained on tungsten carbide

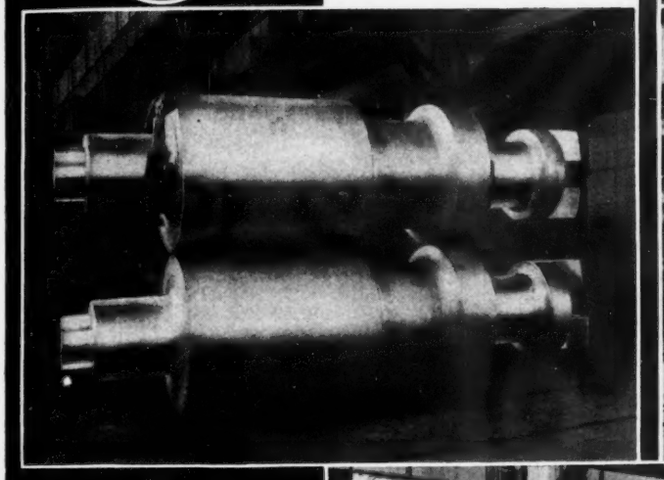
Table I

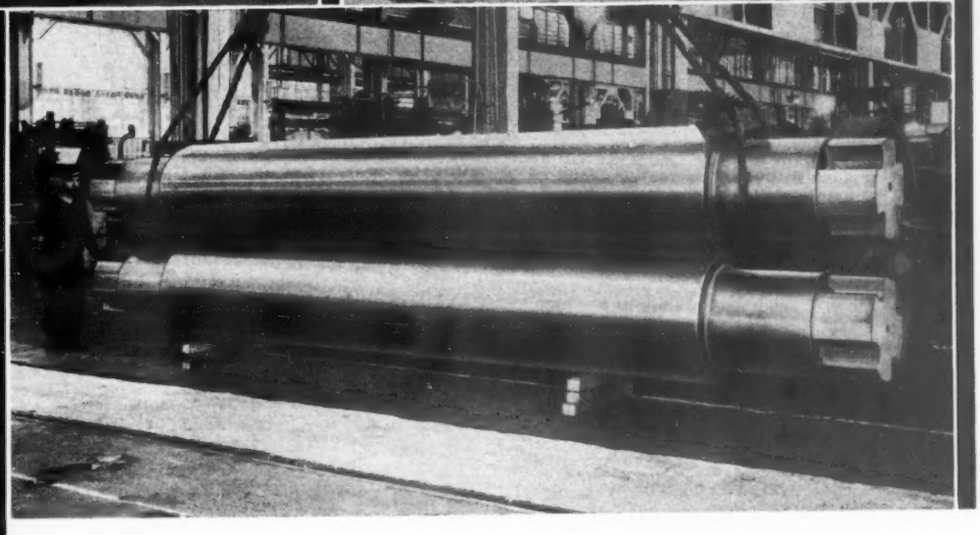
Cemented Tantalum Carbide Tool Tests

Tool No.	Depth cut inches	Feed inches	Speed feet	Duration, Minutes	Remarks
1	$\frac{3}{8}$	0.055	90	8 and 47 sec.	Edge in excellent condition and still sharp.
1	$\frac{3}{8}$	0.055	100	10	Edge still in excellent condition.
Duplicate					
1	1/32	1/64	250	10	Edge not worn. Finish on log good.
1	1/32	1/64	180	20	Edge not worn. Satisfactory finish on log.
2	$\frac{3}{8}$	0.050	70	10	Edge not worn.
3	$\frac{3}{8}$	0.050	70	10	Edge slightly worn.
4	$\frac{3}{8}$	0.050	70	10	Edge showed no wear, but chipped and and cracked back of cutting edge.
Duplicate					
4	1/16	1/64	140	3	Edge and cut excellent.
4	1/16	1/64	180	7	Edge and cut excellent.
4	$\frac{1}{8}$	1/64	200	10	Edge and cut excellent.
4	$\frac{1}{8}$	1/64	250	10	Edge and cut excellent.
4	$\frac{1}{8}$	1/64	300	10	Edge showed slight wear. Finish on log better at 180 feet.
5	$\frac{3}{8}$	0.050	70	10	Edge good but slightly mushroomed.
6	$\frac{3}{8}$	0.050	70	10	Edge in as good condition as No. 4, but not cracked.
7	$\frac{3}{8}$	0.050	70	10	Edge in good condition, but end slightly mushroomed.

ROLLS







"MESTA Special"

Alloy Steel Rolls

Carbon Steel Rolls

Chilled Iron Rolls

Fine Grain Iron Rolls

Alloy Iron Rolls

Sand Iron Rolls

MESTA MACHINE COMPANY

Pittsburgh, Penna., U. S. A.

Mesta

Table II

Properties of Cemented Tantalum Carbide

Sample No.	1	2
Density	13.6	12.6
Rockwell A hardness	84	89
Modulus of rupture in lbs. per sq. in.	192,000	120,000
Conductivity in megamhos	0.035	0.016
Temperature coefficient in ohms per ohm per degree Cent.		
Degrees Cent		
25—102	+0.00119	+0.00238
25—198	+0.00153	+0.00249
25—303	+0.00162	+0.00261
25—399	+0.00178	+0.00284
25—500	+0.00171	+0.00247
Heat conductivity compared with Norway iron		
38—90 degrees Cent.	0.68 of Norway iron at 20—35 degrees Cent.	
30—50 degrees Cent.	0.40 of Norway iron at 14—70 degrees Cent.	
Elastic modulus	58,000,000	

tools and then draw conclusions as to their performance.

Mr. Kelley emphasized that these comparisons were made on nickel steel and no claim has been made that tantalum carbide is superior to tungsten carbide as a tool for general use. Many tantalum carbide tools have been tested on steel under shop conditions at relatively high speeds and the most striking observations are the fine finish, uniform size of the material turned over long sections, the ease with which the material is removed and the long life of the tool due to the reasons already given.

Physical characteristics of cemented tantalum carbide can be varied greatly by changing the composition of the binder, as is shown by the data in Table II. Sample No. 1 contains 87 per cent TaC with 13 per cent of the binder (25 WC, 75Co) and sample No. 2 contains 87 per cent TaC with 13 per cent of the binder (37 Mo, 63 Fe). The sintering temperature of both is 2550 degrees Fahr. for 90 minutes.

The final composition for a tool material, according to Mr. Kelley, will be determined ultimately by long use and experience under manufacturing conditions, and by new developments and progress in the art of fabricating the cemented tantalum carbide.

Faulty Cleaning of Steel Determines Failures in Enamel Finishes

OCCASIONAL failure in enamel finish of fenders and other sheet metal parts has been found to be due to alkaline traces in the rinse water or to invisible rusting agents on surfaces cleaned for priming. This fact was pointed out by F. P. Spruance, American Chemical Paint Co., Detroit, in a paper before the tenth national production meeting of the Society of Automotive Engineers, Oct. 7 and 8 at Detroit. The speaker concluded that the most common and most troublesome cause of failure is the development of local or general rust under the enamel which results from improper cleaning methods.

Mr. Spruance described various cleaning methods, pointing out some deficiencies. The method now most commonly used is to dip the parts in or spray them with boiling water solutions of alkaline salts, followed by rinsing them with cold and then with hot water to remove the alkali, and finally drying them.

The great majority of automobile bodies now are cleaned with a mixture of phosphoric acid and oil solvents, followed by a rinse in cold water. Recently the cleaning with phosphoric acid has been supplemented by a separate operation called "bonderizing" which is a development of the Parker process in which a mixture of manganese dihydrogen phosphate with a small quantity of copper phosphate is used. The parts are hung in the boiling solution and afterward rinsed in boiling water. The result is the deposition of a minute coat of copper having a fine crystalline texture that provides an excellent bond for paint.

Citing numerous advantages of all-steel welded automobile bodies, J. W. Meadowcroft, assistant works manager, and James J. Pough, welding engineer, Edward G. Budd Mfg. Co., Philadelphia, emphasized increased visibility, greater safety, permanent quiet, economical upkeep, fewer parts, two-piece doors, lower center of gravity, no visible outside seams and pleasing outside lines.

All-steel welded bodies are lighter and less bulky than other designs, the speakers claimed, the entire side of the body being stamped from one sheet, with the openings die formed to provide reinforcement. In this type of body the necessary steel skin or shell is utilized as the chief structural member and reinforced by additional strengthening members wherever needed. A combination of flash and spot welding is practiced, one type of sedan body requiring 2303 spot welds and 140 inches of flash welding.

Welding electrodes are important in this work. Most of them are hand drawn copper or a material that contains a large percentage of copper. To insure long life, electrodes usually are cooled to within ½-inch of their points wherever possible. Handling the large units for welding small reinforcements such as those for hinges, locks and fender bolts can be accomplished only on a spot welding machine of great flexibility, used in conjunction with overhead carrying equipment.

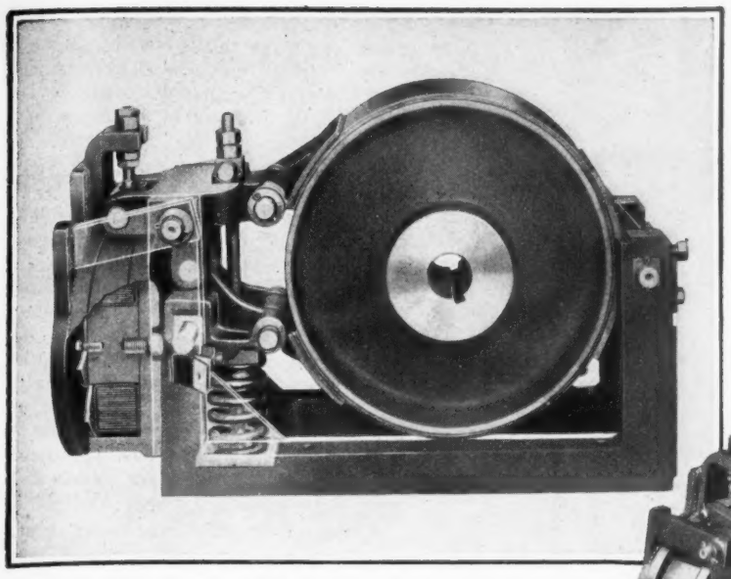
Publishes Statistics of Steel Foundry Industry

Steel Founders' Society of America Inc., has developed and published a booklet entitled "Some Statistics on the Steel and Alloy Foundry Industry," containing tables and comparisons on the production and equipment of steel foundries in the United States and Canada. It is reported to be the most reliable and up-to-date information of its kind relating, as it does, exclusively to the foundry branch of the steel business. Copies may be obtained from the Steel Founders' Society of America Inc., 420 Lexington avenue, New York.

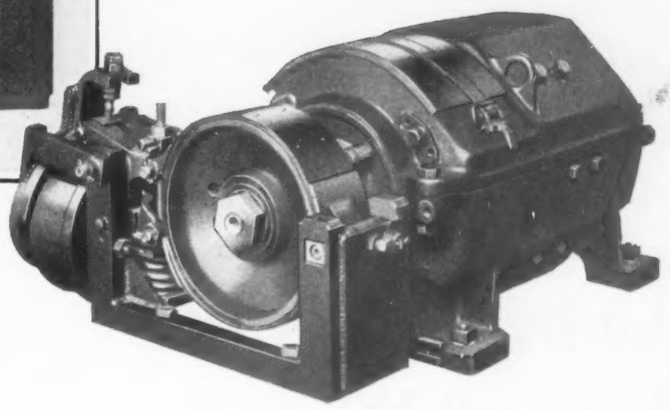
Develops Small Stoker

Combustioneer Inc., Chicago, has produced at its Goshen, Ind., plant a new small automatic stoker with a noiseless ash remover at a nominal price. Ordinary installation requires less than two hours, and the stoker can be used in boilers or furnaces as small as 12½-inch inside firebox diameter. It is designed to burn 1¼-inch screenings (low priced coals) either coking or noncoking, high or low volatile bituminous coal, as well as anthracite.

G-E Band-Type Magnetic Brake



Phantom view of G-E CR9517 magnetic brake. Note minimum adjustments and simple construction



G-E CR9517 magnetic brake mounted to show operating position

It stands the severest service on your mill auxiliaries, cranes, and hoists

POWER to grip and hold — powerfully built of welded bar stock — easily adjusted — weatherproof.

Low pressure — approximately 15 to 18 pounds per square inch for a 30-minute rating — minimizes wear on brake lining and wheel.

Coil terminals are secured to the magnet frame. Coil magnet — easily replaced without changing brake adjustment — is so mounted that terminals can be brought out either side of brake.

Brake bands are interchangeable, top and bottom.

Balanced rolled-steel wheels can be raised vertically with top band thrown back.

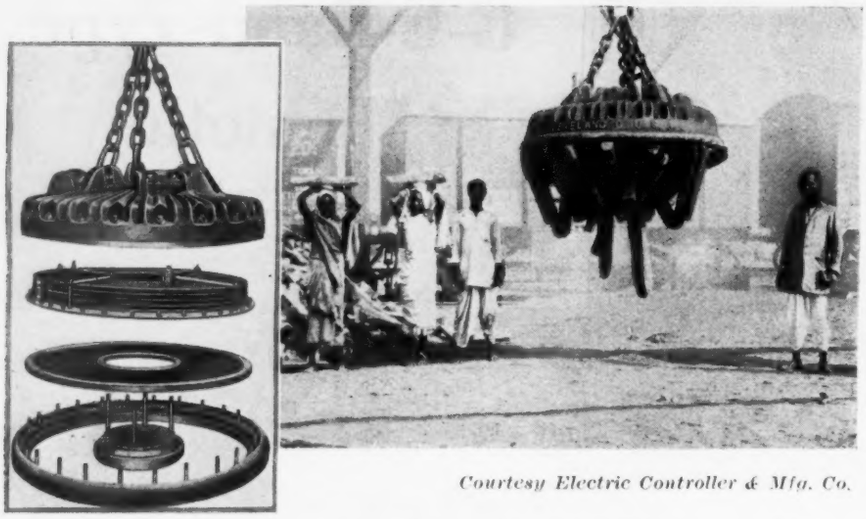
Coils are form-wound, vacuum-treated, and compounded in the magnet frame.

These are the outstanding features of the new G-E CR9517 d-c. band-type magnetic brakes. Write your nearest G-E office for descriptive bulletin GEA-1296A containing complete information.

301-73

GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES



Courtesy Electric Controller & Mfg. Co.

Using a lifting magnet at Burnpur, India, where the temperature reaches 117 degrees Fahr., in the shade, and labor is supposed to be cheap. At the left, magnet body, coil, bottom plate, outer and inner pole shoes

Large Uses of Steel In Small Ways

202nd Article — Industrial Magnets

ABOUT 50 per cent of the weight of industrial lifting magnets is represented by steel, and the remainder by nonferrous metals, chiefly copper in the coils, and insulating materials. The amount of steel consumed annually in their manufacture in the United States is estimated at approximately 200 tons. Open-hearth, alloy and manganese steels are used in their construction.

These magnets are depended upon to perform a wide variety of services, under unusual conditions, at the press of a button, or throw of a switch. For example, they may be required to grip red-hot ingots; they may be plunged to the bottom of a river or lake to salvage pig iron, pipe, or kegs of nails. Again, they may have to work in snow and ice. Through all such experiences which subject them to extremes in contraction and expansion, their windings must remain impervious to moisture, and also undamaged by many, hard blows.

This means that the parts must be made of the strongest materials, accurately machined and assembled. Industrial magnets have been in use for more than a quarter of a century, and though there are differences in details of construction, certain parts and the general manner of their assembly are characteristic.

First, there is the cast-steel casing, or body, usually with deep ribs on the outer periphery, to add to its strength and rigidity, and at the same time, radiate the heat that is generated in the energizing of the coil. Lugs for the suspension of chains are cast integral with this body. The pole surfaces and coil cavity are carefully machined.

Assembled by Bolts

The other principal parts are the outer pole ring, the inner pole ring, and the coil shield, or bottom plate, these being shown in the illustration. After the copper coil has been placed in the body, the bottom plate is put on; then the outer and inner pole rings, all bolted together securely. The contracting edges of these parts are machined. Some manufacturers use alloy steels for the outer and inner pole shoes, while manganese steel generally is used for the bottom plate. This steel is nonmagnetic and extremely resistant to wear. In addition to this bottom plate, some magnets have an inner brass plate for hermetically sealing the coil.

The coils are wound with copper wire or strap, heavily insulated between turns, and it is in their construction and method of installation that the chief differences are noted. Coils are impregnated with insulating material, in vacuum. One manufacturer does this after the coil has been assembled in the body, all space between the body and coils being filled with the insulating compound. Another treats the coil in vacuum, before assembly, and then fills the surrounding space, an expansion chamber in the body of the magnet, with insulating medium.

Magnets of this "mushroom" type constitute the majority of these used for heavy-duty industrial lifting purposes. Rectangular magnets are generally made of a single box-shaped casting, containing the magnetic coil, and having a projection in the center which forms the inner pole, while the outer walls of the casting form the outer pole. Those portions of the casting which constitute the poles, in one manufacturer's product, are at least 2 inches thick at the smallest part, and the ends of the body are reinforced with heavy ribs.

A magnet of the "mushroom" type, weighing 4½ tons, on a recent test lifted 40 tons of material, which though it exceeded its rated capacity by more than 7 tons, gives an idea of the tremendous engergy that can be generated in these compact masses of steel and copper. These magnets generally are made in sizes from 24 inches to 65 inches in diameter. Their weights range from approximately 1 ton to 4½ tons.

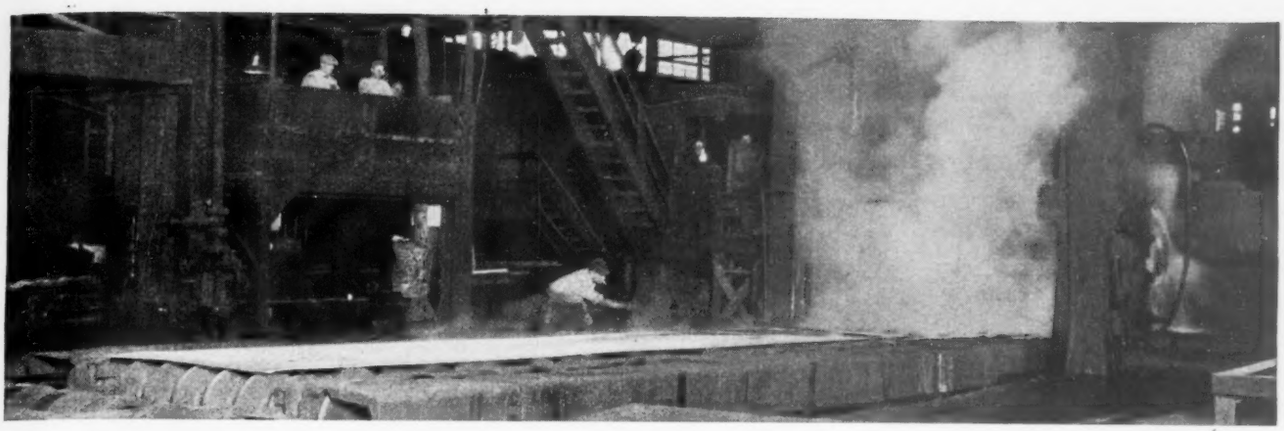
Chief advantages are quick action—responsive to the press of a button; ability to grip all ferrous materials on contact, no slings required; and low upkeep.

Wood Is Treated by New Creosote-Wax Process

Several well-known wood preserving companies now are using a new creosote process which is said to give not only a nonoily product but to add to the wood qualities, increasing its ability to serve in construction and industrial work. The most recent installation of the process is in the Century Wood Preserving Co.'s plant in Charleston, S. C.

Known as the Montan-creosote process, the method employs pure distillate creosote oil as its toxic agent, this being combined in solution before pressure treatment with Montan-wax, a high melting point derivative of lignite. This wax remains solid and free from stickiness up to 180 degrees Fahr. The proper mixture of wax and creosote forced into wood by suitable pressure treatment solidifies in the wood with microscopic globules of liquid creosote encased within thin walls of wax.

Wood treated by the process is claimed to be more resistant to abrasive wear, is light brown in color and can be painted satisfactorily with aluminum paint when a bright surface is desirable. The natural tendency of wood to shrink, swell, warp and check is understood to be considerably reduced by the treatment.



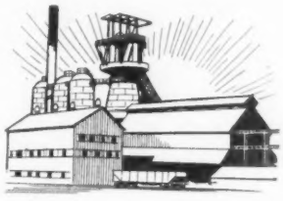
PROGRESS IN STEELMAKING

ONE of the new uses of the photoelectric relay is to be found at a Pennsylvania bar mill. Here the device is used in the process of cutting hot bars to specified lengths of about 150 feet as the bar passes from the last stand of rolls to the hot bed. The bar leaves the rolls at a maximum speed of 1200 feet a minute or nearly 15 miles an hour. When the end of a hot bar passes beneath the photoelectric tube, sensitive to slight changes in light intensity, the change in light sets up a weak current in the tube. This current, amplified to many times its value by another tube in the relay, sets up a chain of operations, and causes the bar to be cut to predetermined lengths.

CHEMICAL secrets of the open hearth are about to be discerned. Experiments recently made at the bureau of mines station, Pittsburgh, indicate that the value of the product of the per cent carbon times the per cent ferrous oxide is approximately 0.01 at 2912 degrees Fahr. Nearly all reactions in open-hearth practice are associated with this reaction between carbon and ferrous oxide to form carbon monoxide and iron.

♦ ♦ ♦

The thrustor, a new device for transforming the rotary motion of an electric motor into a straight-line constant pressure thrust has been applied to a punch press for tripping the clutch. It is mounted directly beneath the clutch-operating rod. The motor is energized by depressing two push buttons in series. The power stroke of the unit releases the brake and engages the clutch smoothly. Releasing one or both push-buttons de-energizes the motor, whereupon a counterweight above the thruster disengages the clutch and sets the brake.



AS A RESULT of use of high efficiency hot blast stoves at a western plant, the amount of blast furnace gas used for heating the blast has been decreased from the former range of 25 to 25 per cent to 14 to 17 per cent, and with approximately half the amount of gas used the resulting stove heats have been higher. The economy of the stoves is evidenced by the low stack temperatures, which are averaging from 250 to 350 degrees Fahr.

♦ ♦ ♦

A rigid conduit made from a new type of flexible alloy steel, which permits easy bending and assures freedom from breaks, is the latest improvement in wiring construction materials. The smaller sizes of the conduit can be bent without the use of tools.

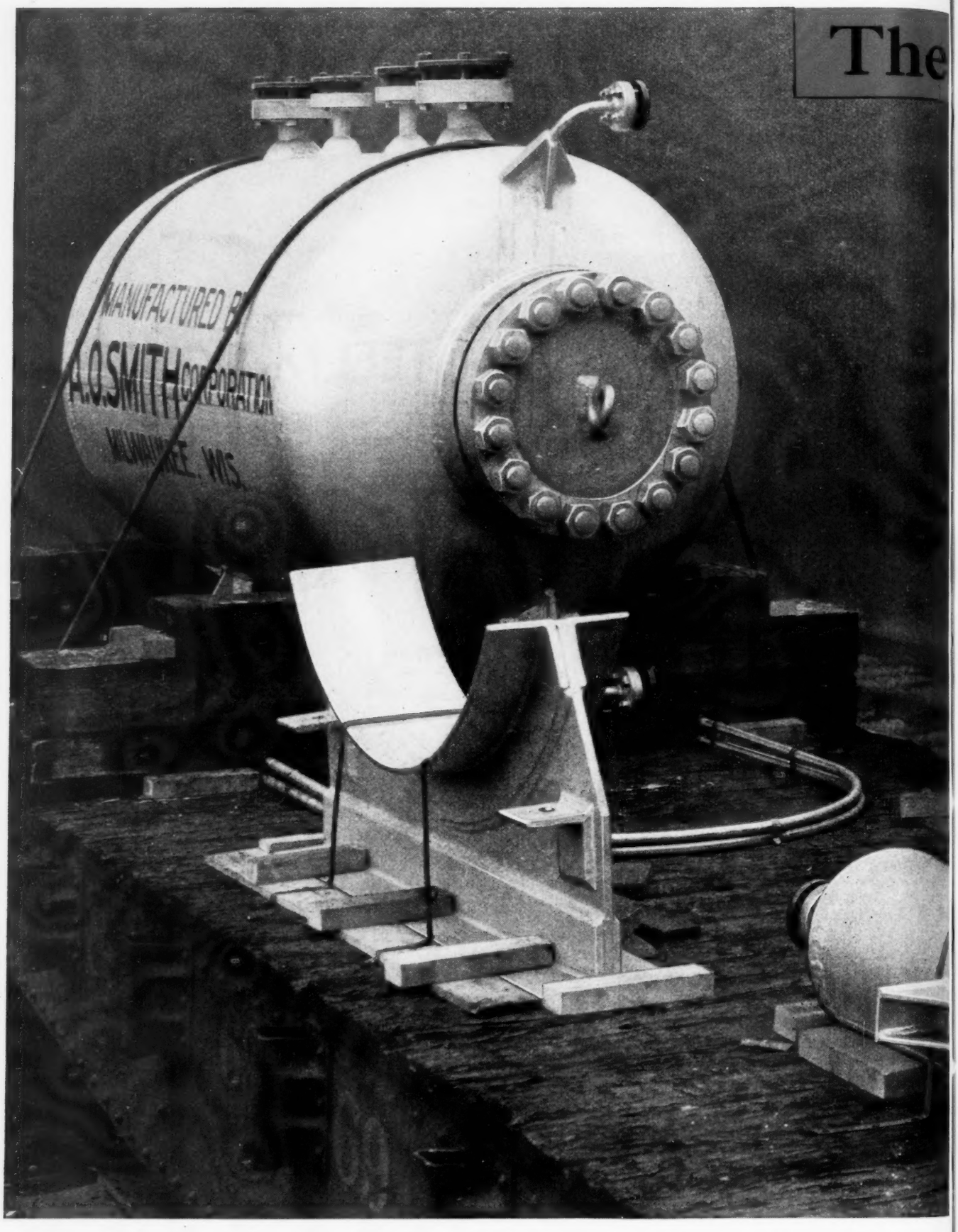
♦ ♦ ♦

In the construction of a 32-inch 3-high universal plate mill for rolling long lengths of light-gage plates for rerolling in sheet mills, a two-fold problem arose in connection with the roughing and finishing speed. The slabs had to be roughed at speeds below 500 feet a minute while the stock had to be finished at much higher speeds in order to increase the output and at the same time to finish the thin plate before it cooled below a satisfactory rolling temperature. The problem was solved by using a 4000-horsepower, 80 to 160 revolutions per minute, reversing-type, adjustable speed motor, directly coupled to the middle pinion. This arrangement provided a quick adjustable range of delivery speed from standstill up to about 900 feet a minute.

♦ ♦ ♦

When a batch of roof brick falls into the bath of steel the practice followed by one open-hearth superintendent is to remelt the heat after the repairs are made and run the slag out the doors. Coke then is charged at intervals and a new slag formed by the addition of burnt lime. This method has been found successful and is more economical than using large quantities of pig iron to get the heat in condition to tap.

REMOVING seams, scabs and scratches from the surface of billets and slabs at a mill in the Cleveland district now is being done by scarifying at a large saving. Formerly 30 men working 10 hours a day were employed in chipping from 2000 to 2500 tons of billets a month but since the inauguration of the scarifying process the same tonnage is being surfaced by a crew of 13 men working 5 to 9 hours a day at a reduction of $0.97 a ton. During the summer months the saving has amounted to $1.31 a ton. A saving of 7.6 per cent in quantity of steel relegated to the scrap pile also has been effected.



SMITH WELDED

THERE ARE NOW MORE THAN 1700 IN SERVICE

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

Tool Steel Failures

Proper co-operation between the maker and consumer of tool steel as a means of avoiding failures, discussed by W. H. Wills, in Metals & Alloys, September 1931, *p.* 122, 4½ *pp.*, 9 *illusts.*

Records over a period of years show that of all complaints, about 40 per cent may be laid to the customer and 60 per cent to the mill. Internal defects such as secondary pipe, inclusions, and gas cavities, are apt not to occur uniformly throughout a heat and may present a baffling problem. Hammer burst may be caused by working too cold, or from a weak center structure. Sometimes steel is annealed too soft resulting in tearing in certain milling operations, thereby producing a rough surface. On the other hand there are cases of machining difficulty where the steel has not been at fault, and a change of cutting compound, setup or grinding of the tools has been the solution. The examination of hardened fractures under a low-power microscope has in some cases worked out better than looking at the polished cross section under a highpower for this purpose. High-speed, high-carbon chromium and other highly alloyed types whose structure is characterized by large carbides that are irregularly distributed show up unfavorably after a long etch. The author attributes better tool steel to better heat treating equipment and methods, closer relations between producer and user, better understanding of tool steel problems and from greater efforts on the part of mills to maintain high standards of quality.

—STEEL, 10-12-31

Welded Rail Joints

Progress report No. 7 by the committee on welded rail points, presented in Journal of the American Welding society, August, 1931, *p.* 14, 60 *pp.*, 50 *illusts.*

The report does not include any of the results previously reported in progress reports Nos. 2 to 6, inclusive. The text includes a study of the heat effects of thermit welds on the adjacent rail material; the effect of preheating and postheating welded specimens and rail joints; additional repeated impact tests of joints and a study of butt joints and fish plate joints made with the atomic hydrogen process. It also includes a study by Professor Lawson of stresses and distortions due to the heat welding of low-carbon to high-carbon plates.

—STEEL, 10-12-31

Stretcher Strains

Relation of the speed of draw to stretcher strains in sheet metal, discussed by J. Winlock, in Metal Progress, September 1931, *p.* 90, 4 *pp.*, 5 *illusts.*

The actual increase in resistance to slip, resulting from the permanent deformation of steel is not only dependent upon the amount of permanent deformation and the temperature at which it is performed, but also upon the time in which the deformation is produced. The time necessary to prevent premature fracture appears to vary according to the heat treatment and other conditions existing in the steel. The time necessary for sufficient work-strengthening to take place to prevent premature fracture from occurring seems to decrease as the extension increases. It would seem that low-carbon steel is best suited for deep drawing purposes when it is in the semiplastic condition, since it then can be deformed at a faster rate without premature fracture taking place and no stretcher strains will form.

—STEEL, 10-12-31

Open-Hearth Control

Percentage of savings in fuel and refractory maintenance by the use of metering and control equipment for open-hearth furnaces, discussed by P. S. Dickey, in Iron and Steel Engineer, September 1931, *p.* 383, 6 *pp.*, 7 *illusts.*

Proper regulation of the fuel-air relation will improve burner efficiency and there will be less tendency towards flame impingement which is highly instrumental toward refractory failure. Accurate control and indication of the draft or pressure within the furnace is highly desirable. To reduce infiltration loss, the draft is maintained close to atmospheric pressure, and there is a possibility that disturbances may create a pressure within the furnace, if careful control is not provided. Means should be provided for rapid and accurate control of the relation between forced and induced draft supply so that the furnace draft may be maintained within close limits, if flame impingement and refractory troubles are to be minimized. A metered record of every fuel burned will serve as a check on the overall heat consumption and for the heat consumption at various stages of the process. Hydraulically-operated control will give excellent service with low maintenance cost, if oil is used as the actuating fluid. Air-operated control systems are probably the lowest cost control systems where a supply of compressed air is available in the plant. The electrically-operated control system offers a high degree of flexibility of operation without complication of the control apparatus.

—STEEL, 10-12-31

Heat Treating Forgings

Three phases of refinement in the annealing of large forgings, discussed by W. J. Mertens, in Heat Treating and Forging, September, 1931, *p.* 870, 2¼ *pp.*, 2 *illusts.*

Maximum refinement of grain structure in steel can only be obtained by restricting growth of crystals immediately after passing through the secondary zone of recrystallization. Down to a temperature of 1000 degrees Fahr. fast cooling by water quench should be most advantageous, while slow cooling below the visible red heat or when rigidity of steel in external parts is maximum, is practical. The improvement in physical characteristics is of such importance that it should compel the concentrated effort of the forging industry to introduce liquid quenching methods for the preservation of the initially refined grain structure of the steel at or just below the quenching temperature. In the heat treatment of large forgings carbide dispersion or relocation is not as important as orderly grouping of alloying elements and metalloids other than iron carbides and the iron carbon thermal and constitutional equilibrium diagram is of secondary importance only. The temperature zone of maximum solid mobility of components, however, is of greatest importance in the heat treating practice for large forgings.

—STEEL, 10-12-31

Machine Tools and Plant Equipment

«Without machine tools modern machinery could not be built.»
—Joseph W. Roe

New Units Are Included in Hydraulic Equipment Line

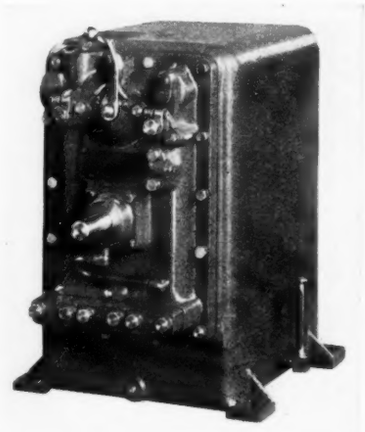
Oilgear Co., 647-683 Park street, Milwaukee, recently added to its line of standard equipment two new high pressure one-way variable delivery pumps and a new constant displacement motor. One of the newly designed pumps is shown in the accompanying illustration. An adjustable internal relief valve which prevents overloading the pumps, work and tools, is a feature of design.

Both pump models have a working pressure of 1500 pounds per square inch and capacity which is variable from 60 to 1650 cubic inches per minute. Power required for the two types varies according to load while maximum power required is 7 horsepower. A 3 or 5 horsepower constant speed motor is sufficient for most applications. Maximum speed is 860 revolutions per minute.

Type QWR2 pump is for use in connection with machines by which are carried out assembling, squeezing, clamping and riveting operations and in similar applications where it is desirable or necessary to hold the work under a predetermined pressure for a period of time. This pump, as well as type QR2, may be used in connection with this company's new constant displacement motors.

Application of type QR2 pump include machines for broaching, assembling, grinding, honing, planing, drilling, boring and similar work where it is essential to have a smooth and positive straight-line motion. Both pumps are compact self-contained units which ordinarily are designed for neat flange-mounting on the machines which they operate. However, they also can be furnished with a standard oil casing having mounting feet or with a combination oil reservoir and base arranged for direct connected motor drive.

In addition to the units described in the foregoing, the company also is building two new pumps having a maximum working pressure of 2500 pounds per square inch.



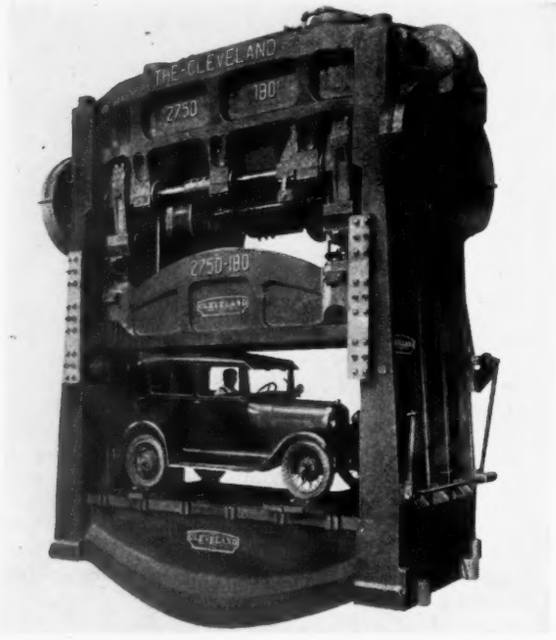
New model of hydraulic pump built by Oilgear Co.

◆

Unusually Large Press Has Four-Point Suspension

Cleveland Punch & Shear Works Co., 3917 St. Clair avenue, Cleveland, recently delivered to a leading automobile manufacturer a four-point suspension press which is unusual, not only in size, but also in design. A clear conception of the great size of this machine is given by the accompanying illustration, through comparison with the popular make of automobile which is standing on the bed.

The bed is a steel casting having overall length of 220 inches and weight of 103,000 pounds. Uprights and crown are correspondingly massive and are united with the bed into a complete unit by eight heavy tie rods—four on each side. Ordinarily only four such rods are used in similar presses.



WEIGHING half a million pounds, this huge press built by Cleveland Punch & Shear Works Co., is said to be the largest unit of its kind ever constructed. It has a capacity of 600 tons and can be controlled through a push button by a single operator. The massive bed, crown and side plates of this machine are bound together as a unit by eight heavy tie rods

Balanced Drive to Slide

Instead of the conventional centrally located shaft with two cranks above the center of the slide, this press is equipped with twin shafts providing four cranks—one at each corner of the slide. The maker points out that this design eliminates any tendency of the slide to rock when taking its maximum load, equal power always being exerted on all four cranks. This assures that a high degree of accuracy is maintained continuously. Wear and tear on dies, as well as on the machine itself, also are minimized.

Another novel feature embodied in this design is means whereby adjustment of the slide from 0 to 24 inches readily is possible. The press is designed throughout for roller bearings, with the exception of the

The PROOF *is in the working*

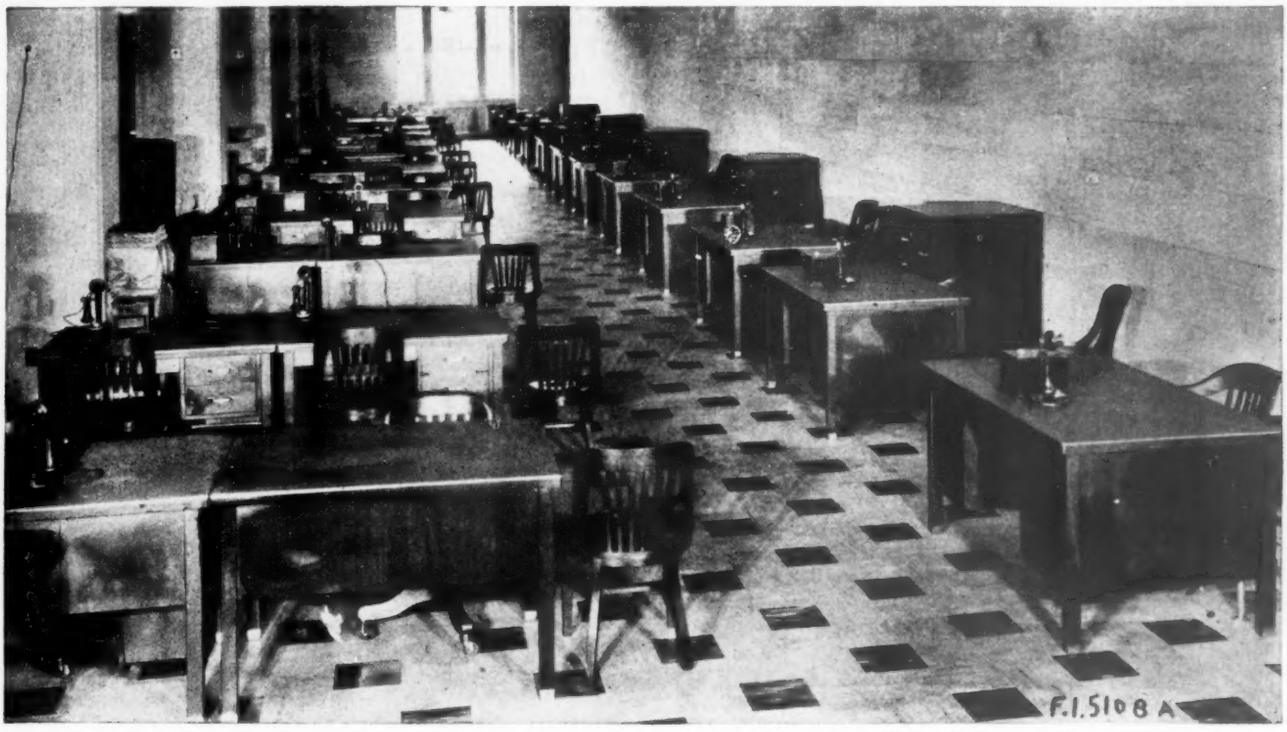
THE outstanding feature of "Youngstown" sheets is their excellent working qualities. « « « On every order received, the purpose for which the sheets are to be used is carefully considered by the Youngstown Research Department and the order filled with the material best suited for that particular purpose. « « « Tell us the special qualities you want in your sheets, or the purpose for which they are to be used, then leave the rest to us. There is a "Youngstown" sheet for every purpose.

THE YOUNGSTOWN SHEET AND TUBE CO.

One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"

General Offices—YOUNGSTOWN, OHIO

An installation of metal furniture fabricated from Youngstown furniture sheets.



YOUNGSTOWN

DISTRICT SALES OFFICES

ATLANTA - - - Healy Building
BOSTON - - - - - - Chamber of Commerce Building
BUFFALO - Liberty Bank Bldg.
CHICAGO - - Conway Building
CINCINNATI - - Union Trust Building
CLEVELAND - Terminal Tower Building
DALLAS - - - Magnolia Building
DENVER - Continental Oil Bldg.
DETROIT - - - Fisher Building
KANSAS CITY, MO. - Commerce Building
LOS ANGELES - 3000 Santa Fe Ave.
MEMPHIS - - 42 Keel Avenue
MINNEAPOLIS - - Andrus Bldg.
NEW ORLEANS - Hibernia Bldg.
NEW YORK 30 Church Street Hudson Terminal Building
PHILADELPHIA - - - - Franklin Trust Building
PITTSBURGH - Oliver Building
SAN FRANCISCO - - - - 55 New Montgomery Street
SEATTLE - - - Central Building
ST LOUIS - - - Louderman Bldg.
YOUNGSTOWN - - Stambaugh Building
LONDON REPRESENTATIVE
The Youngstown Steel Products Company, Dashwood House, Old Broad Street, London, E. C. Eng.

GALVANIZED SHEETS PROTECT — SAVE WITH STEEL

crankshafts which run in specially designed oil tight removable bronze bearings.

Although this press weighs approximately 500,000 pounds (the flywheel alone weighing 5 tons) and has capacity of 600 tons, it literally is under finger-tip control of a single operator through a push button. Auxiliary hand control facilitates accurate setting of the dies when arranging the machine for a new run of work.

This type of press is designed for large multiple production of such automobile stampings as side and quarter panels, cowls, etc., and can be furnished in all sizes to suit any requirements of the sheet metal industry.

◆

New Roller Bearing Units Are Self Aligning

Shafer Bearing Corp., 6501 West Grand avenue, Chicago, recently placed on the market an entirely new line of self-aligning roller bearing units for normal duty applications. Lighter in weight, compact and with simpler housings, these units, one of which is shown in the accompanying illustration, are furnished as pillow blocks, flange units, and take-up units in a full range of shaft sizes from ¾ to 3 inches. The inner race of the bearing is extended on one end only and fastened to the shaft by a special locking collar which can be seen in the illustration.

Sealing of the normal duty unit is accomplished by a grease seal consisting of two steel stampings pressed into the housing or cover. Between the stampings is a fiber washer which is a slip fit on the extended cone. The seal effectively excludes dirt and other abrasive materials, retains lubrication and insures uninterrupted performance and long bearing life.

Because of the exclusive concave roller-convex raceway assembly, it is claimed that the bearing carries full load and rolls freely even at the extremes of its self-aligning action. This action eliminates difficulties frequently experienced where operating conditions are severe or where shaft deflection or misalignment is present.

◆

Higher Ductility Provided By Improved Electrode

Lincoln Electric Co., 12818 Coit road, Cleveland, recently introduced an improved, heavily coated electrode for welding within the shielded arc on mild steel. Tests show that higher ductility of weld metal, 20 to 30 per cent elongation in 2 inches, is provided by the new electrode as compared with its predecessor. Tensile strength of test coupons is increased about 10 per cent, to averages between 65,000 and 80,000 pounds per square inch.

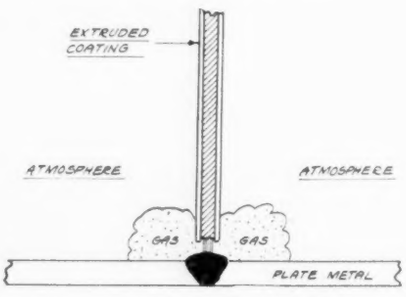


Diagram showing action of electrode developed by Lincoln Electric Co.

According to the maker, little "spattering" is encountered with this new product and, as shown in the accompanying diagram, the shileded arc resulting from the heavy coating on the outside of an electrode of mild steel of proper specifications. This coating, burning in the arc less rapidly than the electrode melts, forms in effect a crucible around the arc, protecting it for almost its entire length. As the coating burns it gives off the oxidizing gas which prevents oxygen and nitrogen in the ambient atmosphere from reacting with the molten metal.

The heavy coating of this electrode is of special composition material, the metal core is drawn to rigid specifications, carefully selected and tested. The new diameters of the product range from ⅛ to ⅜-inch, in two lengths, the standard being 14 inches, while a special length of 18 inches is popular on pipe line work and wherever extremely high speed is desirable.

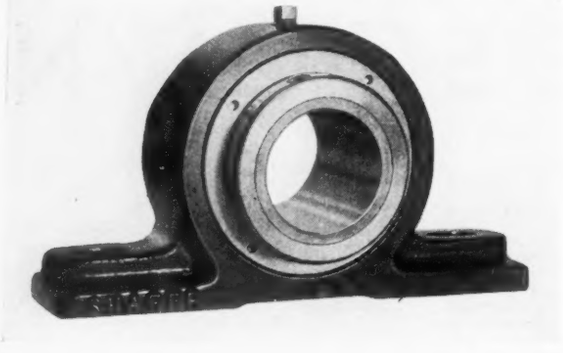
New type of drill designed by Independent Pneumatic Tool Co.

◆

Pneumatic Drill Is Driven By Rotary-Type Motor

Independent Pneumatic Tool Co., 600 West Jackson boulevard, Chicago, recently developed a new rotary pneumatic drill to be used primarily for tapping and retapping stud holes, etc., in locomotive boilers. It also can be used for placing on and removing nuts, cap and lag screws, in addition to tapping new threads in locomotive cylinder head castings.

In design the new tool, shown in the accompanying illustration, incorporates the rotary air principle. Designated as 254R, the drill is capable of tapping new holes to and including 1 inch and retapping holes up to 1⅛-inch diameter. The light weight of the device enables one man to conveniently handle it without any assistance. Specifications comprise a speed of 100 revolutions per minute, weight of 19 pounds, and an overall length of 14½ inches. Three sockets are included as standard equipment for each machine.



SELF-ALIGNING action is an important feature of new roller bearing units introduced by Shafer Bearing Corp. Sealing is accomplished by two steel stampings pressed into the housing

Sentiment Lifts As Needs Mature

Believed Railroads and Auto Interests Cannot Much Longer Defer Buying —Stabilization Effort Encourages—Steel Rate Holds at 29 Per Cent

TIME is increasingly on the side of steel producers, and as the late fall approaches such important outlets for steel as the railroads and the automobile industry apparently cannot much longer defer covering certain minimum requirements.

Stimulated also by the President's creation of a billion dollar credit pool to divert to industry funds now frozen in bank credits, a development which will not affect steel directly but cannot help quicken all industry, sentiment in steel has lifted considerably.

Previously has steel been falsely buoyed by recurring vain hopes of improvement; in the past week a 29 per cent production rate was maintained with difficulty; the most sanguine do not look for any appreciable bulge—yet the outlook for the long pull is brighter.

Inexorably the time during which the automobile industry can produce new models for dealers' stocks and display at the January shows is narrowing, and Detroit counts upon four good production weeks this quarter. Ford has bought 10,000 tons of steel, chiefly sheets and strip, Chevrolet is about to specify for its 1932 line, other General Motors units are figuring.

Particularly in the Mahoning valley are substantial hopes being built upon an improved automobile situation, affecting the mills late this month. This week and last were the first two weeks in months that autobody sheet makers have operated consecutively.

Whatever the interstate commerce commission rules concerning freight rates, some needs that have been restrained because of this proceeding and certain requirements for maintenance must develop shortly. In addition, the next month will mature rail inquiries from the principal carriers. The Erie, it is reported, will buy 35,000 tons for 1932.

Because the President's credit pool is largely a salvage operation, partially for the small home owner, no marked immediate impulse to building is foreseen, but a continuation of public works—mainstay of the structural market for some months—is assured. Last week structural steel awards totaled 23,900 tons, bringing 1931 bookings to date to 1,559,636 tons, compared with 1,504,587 tons in the comparable period of 1930.

Implement and tractor manufacturers in the Chicago district may benefit soon from further Russian orders. If the Continental Construction Co. extends its 20-inch gas line northward from Chicago and the Sun Oil Co. lengthens its 10-inch line in northern New York, pipe mills will book orders for 40,400 and 4000 tons.

Viewing the steel markets by products, little variation is evident from week to week. In plates and bars, bookings are off slightly. Whatever change has developed in sheets and strip has been on the side of improvement, and in the case of wire, one maker has registered a 45 per cent gain this month. Steel prices are firm.

In the past week steel production averaged 43 per cent at Buffalo, 35 at Cleveland, 30 at Birmingham and in eastern Pennsylvania, 28 at Chicago and Youngstown and 25 at Pittsburgh. Because open-hearth operations are staggered at Buffalo, the rate there will drop to 35 per cent this week; otherwise no changes are indicated. In September, when the daily ingot output was 59,523 tons, lowest in exactly a decade, the rate was 28.02 per cent.

In pig iron the trend is toward improved shipments but it is barely perceptible. The price situation is weaker at Chicago and Philadelphia.

The easier situation in pig iron has dropped STEEL's iron and steel composite 4 cents this week at $30.78. Softening in scrap has lowered the scrap composite 9 cents to $8.58. The finished steel composite stands at $48.22.

Composite Market Averages

	Oct. 10	Oct. 3	One Month Ago (Sept., 1931)	Three Months Ago (July, 1931)	One Year Ago (Oct., 1930)	Ten Years Ago (Oct., 1921)
Iron and Steel Composite	$30.78	$30.82	$31.03	$31.05	$32.26	$35.46
Finished Steel Composite	48.22	48.22	48.72	48.68	50.13	54.75
Steelworks Scrap Composite	8.58	8.67	8.82	8.70	12.32	11.89

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. **Finished Steel Composite:**—Plates, shapes, bars, sheets, hot strip, nails, tin plate, pipe. **Steelworks Scrap Composite:**—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Oct. 10, 1931	Sept., 1931	July, 1931	Oct., 1930
PIG IRON				
Bessemer, del. Pittsburgh	$18.26	18.26	18.26	19.36
Basic, valley	17.00	17.00	17.00	17.00
Basic, eastern del. eastern Pa.	16.50	16.50	16.75	17.50
No. 2 foundry, del. Pittsburgh	18.26	18.26	18.26	18.46
No. 2 foundry, Chicago	17.00	17.50	17.50	17.50
*Southern No. 2, Birmingham	12.00	12.00	12.00	14.00
**No. 2X, Virginia furnace	18.00	18.00	18.25	18.25
**No. 2X, Eastern del., Phila.	17.26	17.26	17.51	19.26
Malleable, valley	17.00	17.00	17.00	17.80
Malleable, Chicago	17.00	17.50	17.50	17.50
Lake Superior, charcoal, del. Chi.	25.04	25.54	27.04	27.04
Gray forge, del. Pittsburgh	17.63	17.63	17.63	17.83
Ferromanganese, del. Pittsburgh	89.79	89.79	89.79	103.79

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $11, Birmingham. **2.25 to 2.75 silicon.

COKE				
Connellsville furnace, ovens	2.40	2.40	2.40	2.60
Connellsville foundry, ovens	3.25	3.25	3.25	3.50
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	29.00	29.00	29.00	31.00
Sheet bars, open-hearth, Pitts.	29.00	29.00	29.00	31.00
Billets, open-hearth, Pittsburgh	29.00	29.00	29.00	31.00
Wire rods, Pittsburgh	35.00	35.00	35.00	36.00

	Oct. 10, 1931	Sept., 1931	July, 1931	Oct., 1930
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.60
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.89	1.89	1.89	1.89
Iron bars, Chicago	1.70	1.70	1.70	1.75
Shapes, Pittsburgh	1.60	1.60	1.60	1.60
Shapes, Philadelphia	1.76	1.76	1.76	1.76
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.60	1.60
Tank plates, Philadelphia	1.80½	1.80½	1.80½	1.80½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.85	1.85	1.85	1.95
†Sheets, No. 24, hot, ann., Pitts.	2.40	2.40	2.40	2.40
Sheets, No. 24, galvan., Pitts.	2.90	2.90	2.90	3.00
Sheets, No. 10 blue anneal., Chi.	2.00	2.00	2.00	2.15
†Sheets, No. 24, hot, ann., Chi.	2.55	2.55	2.55	2.60
Sheets, No. 24 galvan., Chi.	3.05	3.05	3.00	3.20
Plain wire, Pittsburgh	2.20	2.20	2.20	2.30
Wire nails, Pittsburgh	1.90	1.90	1.85	2.00
Tin plate, per base box, Pitts.	4.75	5.00	5.00	5.00

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	$10.50	10.80	10.50	14.80
Heavy melting steel, eastern Pa.	8.50	8.50	8.75	12.00
Heavy melting steel, Chicago	7.75	7.95	8.50	11.55
No. 1 wrought, eastern Pa.	9.50	9.75	9.75	14.25
No. 1 wrought, Chicago	8.00	8.00	8.25	10.95
Rails for rolling, Chicago	10.50	10.50	10.50	14.10

Sheets

Attractive Automotive Orders Believed Nearing—Low Cotton Price Halts South's Needs

SHEET PRICES, PAGE 51

Youngstown, O.—Some expansion in activities of independent sheet mills this week is expected to be followed by further mild expansion next week Autobody sheet manufacture this week has increased somewhat, with some plants operating around 40 per cent. These mills now have sufficient specifications in hand to insure a similar operating rate next week, the first time in months they have had two successive weeks' operation at that rate.

The one feature common to most grades of sheets at this time is undoubted price firmness, the only apparent softness being possibly in tin mill black, somewhat of a specialty.

New York—Sheet prices continue steady. On a modest tonnage of galvanized sheets for a large consumer with a number of sellers competing bids reflected the 2.90c, Pittsburgh, price. A fair volume of seconds is moving but in practically all cases to legitimate users of this off material.

Philadelphia—Sheet prices generally are steady and the volume is unchanged. Stove makers, enjoying a seasonal pickup, constitute the most active consuming group. One radio manufacturer has suspended shipments; another, out of the market practically the entire year, is expected to become more active.

Pittsburgh — Prospects for improved sheet demand from automotive interests have been aided somewhat by increased inquiry. Actual business placed, however, has been light and it is regarded as unlikely that large lots for new models will be forthcoming this month. Ford is not expected to start active operations on new models before November. Demand from other consumers is at practically an unchanged rate and production of commoner finishes holds around the September rate. Radio companies are taking slightly larger lots and increased sheet demand for freight car repair work is anticipated. Prices continue to show stability although a test from heavy buying is deferred. Hot-rolled annealed sheets continue 2.40c, galvanized 2.90c, blue annealed 1.85c, and autobody 3.10c. Sheet mill operations continue around 30 per cent.

Cleveland—In spite of the fact small and only occasional sheet orders continue to rule in this district, nearby sheet mills shared last week in some attractive automotive sheet and strip purchases. Ford Motor Co. has placed a lot partly with a Mahoning valley mill as has Chevrolet; the local Fisher Body plant is practically retooled now and awaits the steel purchases to be made in Detroit for it to resume full activity on the 1932 Chevrolet lines. However, stampers on automotive hardware and small parts are not active. Locally, barrel makers' orders are small. Prices are firm.

Cincinnati—Practically no change was noted last week in demand for sheets excepting a decrease in specifications for road materials.

Chicago — Sheet mill production has been reduced from 35 to 30 per cent. Orders have become lighter and fewer. The leading independent has closed down its ten hot mills in the Milwaukee district. Prices are untested by attractive business. No interest in forward contracting is shown, although some obligations of about 30 days ahead have been concluded.

St. Louis—Demand for sheets has developed moderate betterment since Oct. 1, but volume of sales is still considerably below seasonal average. Specifications have been coming in slightly better, with jobbers more disposed to fill out assortments. Movement of galvanized material continues disappointing, particularly in the South, where the low price of cotton is restricting purchasing. Tin mill black, No. 28, is now quoted delivered here at 3.00½c.

Current Finished Steel Prices

Prices in cents per pound unless otherwise stated

Steel Sheets

HOT ROLLED No. 10

Pittsburgh base	1.70c
Gary, Ind. Harbor, base	1.80c
Chicago, del.	1.85c
Philadelphia, del.	1.99c
Birmingham, base	1.85c

BLUE ANNEALED No. 9-10

Pittsburgh, base	1.85c
Chicago, district mills	1.95c
Chicago, delivered	2.00c
Philadelphia, del.	2.14c
St. Louis, delivered	2.20½c
Birmingham	2.00c to 2.05c
San Francisco, c.i.f.	2.50c

HOT ROLLED ANNEALED No. 24

Pittsburgh, base	2.40c
Gary, Ind. Harbor, base	2.50c
Chicago, del.	2.55c
Philadelphia, del.	2.69c
Birmingham, base	2.55c
St. Louis, del.	2.75½c

GALVANIZED No. 24

Pittsburgh, base	2.90c
Gary, Ind. Harbor, base	3.00c
Chicago, del.	3.05c
Philadelphia, base	3.19c
Birmingham, base	3.05c
St. Louis, del.	3.25½c

AUTOMOBILE No. 20

Pittsburgh, base	3.10c

FURNITURE

Pitts., No. 10 heavy	2.75c
Pitts., No. 20 light	3.35c

TIN MILL BLACK No. 28

Pittsburgh, base	2.65c
Gary base	2.75c
St. Louis, del.	3.00½c

HEAVY COLD ROLLED No. 10

Pittsburgh base	2.35c
Gary, Ind. Harbor, base	2.45c
Chicago, del.	2.50c
Philadelphia, del.	2.64c
St. Louis, del.	2.70½c

COLD ROLLED No. 20

Pittsburgh, base	2.95c
Gary, Ind. Harbor, base	3.05c
Chicago, del.	3.10c
Philadelphia, del.	3.24c
St. Louis, del.	3.30½c

Tin and Terne Plate

Prices per 100 pound box Pittsburgh

Tin plate, coke base	$4.75

Gary, Ind., base 10 cents higher.

Long ternes 24, unassorted, lb.	3.15c

Wire Products

(To Jobbers-Merchant Trade)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.90 and 2.00
Cement coated nails	1.90 and 2.00
Galvanized nails	3.90 and 4.00

(Per pound)

Polished staples	2.35c and 2.45c
Galvanized staples	2.60c and 2.70c
Barbed wire, gal.	2.55c and 2.65c
Annealed fence wire	2.35c and 2.45c
Galvanized wire	2.80c and 2.90c
Woven wire fencing, (9-11 ga.)	$55.00 and $60.00
(12½ ga. and lighter)	60.00 and 65.00

(To Manufacturing Trade)

Plain wire 6-9 gage	2.20c
Spring wire	3.20c

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind., Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield Ala., $3 higher.

Rivets

Struc. c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. smaller, Pitts.	70, 10 and 5 off
Chi., Cleve.	70, 10 and 5 off

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, del.	1.80½c
New York, delivered	1.88c
Boston, delivered	2.00c
Chicago, base	1.70c
Cleveland, base, for railroads	1.65c
Lackawanna, N. Y., base	1.70c
Birmingham, base	1.75c to 1.80c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	1.85c to 1.95c
St. Louis, del.	1.95½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.76c
New York, del.	1.85½c
Boston, del.	1.98½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham base	1.75c to 1.80c
Pacific Coast, c.i.f.	2.05c to 2.15c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham base	1.75c to 1.80c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c to 2.05c
Cleveland, base, local del.	1.65c
Cleveland base, out. del.	1.65c
Philadelphia, del.	1.89c
New York, del.	1.93c
Boston, del.	2.00c
Pittsburgh, cold finish	1.85c
Pittsburgh, forg. qual.	1.90c

RAIL STEEL

Chicago Heights	1.50c to 1.60c
Eastern mills	1.30c
Pittsburgh	1.30c to 1.35c

IRON

Chicago, base	1.70c
New York, delivered	1.93c to 2.03c
Philadelphia, delivered	1.89c to 1.99c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pitts., billet cut lengths	1.75c
Stock lengths, mill	1.60c
Chi., billet	1.60c to 1.80c
Chi., rail steel	1.35c to 1.60c
Chi., rail steel, bridge and culvert	1.60c to 1.65c
Philadelphia, cut lengths	1.94c to 1.99c
Cleveland, cut lengths	1.75c

Cold Finished Bars, Shafting

Base, Pittsburgh, Chicago, Buffalo and Cleveland	2.10c
Shafting, turned and ground, Pittsburgh, Cumberland, Md.	2.45c to 2.90c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot strip	19c	20.5c	23c	28c
Cold strip	25c	26.5c	32c	37c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to $6.75 off
Carloads, Chicago dist.	7.00 to 7.45 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bars, 2.65c, mill

S.A.E.	Alloy Diff.	S.A.E.	Alloy Diff.
2000	0.25	1.25-1.75 Ni.	1.05
2100	0.55	5100 .80 - 1.10 Cr.	0.45
2300	1.50	51.00 Cr. spring	0.20
2500	2.25	6100 bars	1.20
3100	0.55	6100 Spring	0.95
3200	1.35	Cr., Ni., Van.	1.50
3300	3.80	Carbon Van.	0.95
3400	3.80	9250 (flats)	0.25
4100 .15 to .25 Mo.	0.50	9250 (rds.,sq.)	0.50
4600 .20 to .30 Mo.			

Strip, Hoops Bands

Hot strip, to 6-in., Pitts.	1.65c
Do, 6 1/16 to 24-in., Pitts.	1.55c
Hot strip, bands 6 in. and under, Chicago	1.75c
Do, 6 1/16 to 24 in.	1.65c
Cooperage hoop, Pitts.	1.70c to 1.80c
Do, Chicago	1.85c to 1.95c
Cold rolled strip, Pitts., Cleveland	2.15c
Worcester, 3 tons, over	2.30c

Rails, Track Material

Standard bess. and open hearth rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$22.00 to $26.00
50 to 75	20.00 to 24.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$34.00
Light rails, Chicago	$36.00
Angle bars, Chi. base	2.75c
Spikes, railroad, mills	2.70c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.70c
Spikes boat, barge, Pitts.	2.90c
Spikes, railroad, Chi.	2.80c
Track bolts, Pitts., steam roads	3.80c
Do, standard, jobbers	73 off list
Track bolts, Chicago	3.80c
Tie plate, mills	$39.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread	73 and 10 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list	73 and 10 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts	73 and 10 off
Tire bolts	60, 10 and 10 off

Stove bolts, 80, 10, 10, 5 off in pkgs.; 80, 10, 5, 2½ off in bulk.

Rolled thread machine bolts, ¾ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished	73 and 10 off

HEXAGON CAP SCREWS

Milled	80-10-10-5 off
Upset 1 in. diam. and smaller	85-10 off

SQUARE HEAD SET SCREWS

Milled	80-5 off
Upset 1 in. and smaller	80-10-5 off
Upset, larger than 1 in.	80-5off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh	2.50c

Do, less carloads, 5 kegs or over, 2.75c; less than 5 kegs 2.90c.

Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Sheet piling, Pitts.	1.90c

Bars

Slight Seasonal Increase in Buying—Prices Holding Well—Implement Makers Take More

BAR PRICES, PAGE 51

Chicago—While shipping orders and sales in bars and other heavy finished products have improved over the last three or four weeks, the upturn is ascribed chiefly to customary specifications at the beginning of the month. Most promising among bar consuming groups are the plans of several implement works to resume early in November. Bar mills are operating slightly under 30 per cent. The base price of 1.70c, Chicago, is more easily held for bars and plates than for structural material. Concessions have been made in deformed bars for public works projects. Deformed bar shipments are leading.

New York—Business in commercial steel bars continues at the restricted rate of the past several weeks, with no material increase in sight. Prices are steady at 1.60c, Pittsburgh. Common iron bars are 1.60c to 1.70c, Pittsburgh.

Philadelphia — Commercial steel bars are dull and unchanged at 1.60c, Pittsburgh.

Pittsburgh—Bar demand fails to improve. The outlook is slightly better as a result of a prospective increase in the near future in automotive requirements. Orders placed so far this month, however, indicate no immediate upturn in schedules of motor car builders. Forward buying is light but the market is fairly steady at 1.60c, Pittsburgh, on new business.

Youngstown, O.—Steel bar buying is confined almost entirely to immediate needs of consumers. Alloy steel bars are being produced and sold along lines parallel in activity with common bars but are expected to pick up with revival in the automotive industry when next month the new models are put into production. Common steel bars bring 1.60c, Pittsburgh.

Cleveland — Merchant steel bar sales have been considerably more numerous but not of enough volume to measurably mark October as bettering September. The local bar mill, as well as outside mills, have been receiving an improved number of inquiries. The 1.65c Cleveland base is well held locally, but outside—especially in the Detroit district—there has been some movement to shade this figure.

Ballard Drop Forge Co., 4518 Fourteenth avenue N. W., Seattle, established in 1903, has changed its name to Northwest Bolt & Nut Co. W. R. Yeakel is president.

Cold-Finished Market Receives Automotive Inquiry

Cold Finished Prices, Page 51

Pittsburgh—Increased interest in new buying of cold-finished bars on the part of automotive interests is outstanding in an otherwise dull market. New business continues as light as formerly but inquiry is more active and the outlook for better business in the near future is more promising. Shipments continue quiet and are not expected to improve materially for a number of weeks. The market continues 2.10c, Pittsburgh

Cleveland — Little change was noted last week in specifications and shipments of cold-finished steel bars. The automobile trade's orders have not been opened up in full and parts plants are not showing operating expansion. The market is 2.10c, on new business.

Sterling Variation Halts Foreign Iron Ore Trade

Iron Ore Prices, Page 62

New York—Sellers of foreign ores are awaiting with interest the fixing of a monetary standard for the basis of future transactions. Until England's recent suspension of the gold standard practically all foreign ore business, whether with this country or foreign countries, was transacted on the pound sterling basis. With the present fluctuation in value such transactions now are out of the question.

Meanwhile, demand for ores in this country is negligible, with stocks generally substantial. In fact, in manganese ore, there have been some suspensions against existing contracts.

Plates

Three Thousand Tons for Tanks Booked at Chicago—Large Lots Win Concessions in East

PLATE PRICES, PAGE 51

Chicago—Despite scattered inquiries for storage tank plates, the oil fields hold little of promise in the plate market. About 3000 tons of tankage has been booked by local fabricators and scheduled on Chicago district plate mills, which are operating about 30 per cent. Plate prices are based on 1.70c, Chicago. Sales and specifications were the best in about a month, sales largely covering shipment for the next 30 days.

New York—Plate demand remains spotty, with few important tonnages. Prices on carlots are usually 1.70c, Coatesville.

Pittsburgh—Plate demand is holding its own but the outlook for early improvement is rather dull. Requirements of freight car builders continued quiet and pipemakers are less active buyers. Barge awards remain light despite the fairly large volume of pending work. The market usually is 1.60c, Pittsburgh.

Cleveland—In large part, boiler shops and other plate fabricators have nothing to figure on in the building lines. Only occasionally do their commitments to the mills run into the carlot size. The general run of orders that sales offices receive do not maintain any regularity in mill rolling schedules. The 1.60c Pittsburgh base is applied without difficulty to orders. Bids close Oct. 12 on a municipal tank for Barberton, O., to take close to 300 tons of plates and structurals, mainly the former item.

Philadelphia—Plates are soft at 1.70c, Coatesville, Pa., for carlots, with tonnages attracting concessions. Demand is light. A leading mill is operating at 35 to 40 per cent.

Contracts Placed

110 tons, 200,000-gallon steel tank and tower, Los Angeles general hospital, Los Angeles, to Chicago Bridge & Iron Works, Chicago.

Contracts Pending

300 tons, municipal tank, Barberton, O.; bids close Oct. 12.

200 tons, lock gates, second unit for Marmet locks, Charleston, W. Va.; bids open Oct. 23 by United States engineers, Huntington, W. Va., district.

Railroads

Car Shops Inactive—Mill Operations Steady—Atlantic Coast Line Inquiry Small

TRACK MATERIAL PRICES, PAGE 51

Chicago—Comfortable steel rail releases again give assurance of continued rail mill operations at about 25 per cent for the district for the next month. Among small lots of finished steel specified by railroads is 500 tons for the Indiana Harbor Belt Line railroad. Railroad shop activity is low, and recent specifications for bars, shapes and plates by the western carriers have been reduced. The only rail order in sight is 50,000 to 60,000 tons for the Santa Fe.

New York—Car buying is light and includes 30 tank cars for Continental Oil Co. to Pressed Steel Car Co. General American Car Corp. and Haffner-Thrall Corp., Chicago, are low on three flat cars for the navy department. Atlantic Coast Line is tentatively inquiring forw several thousand tons of rails. Pennsylvania railroad closes bids Oct. 14 on contract 26, aluminum requirements, and contract 27, axles.

Buffalo—Rail mills are more comfortably provided with tonnage than they have been for some time past. Lackawanna mills have 10,500 tons on order for delivery this month and Bethlehem also hopes to share in some additional business which is scheduled for early closing.

Pittsburgh—The market for track material continues quiet, new business being light and specifications against old orders holding at their recent dull rate. Rail business as yet has benefitted the local mills but little. Light rails also are dull, the market usually $34.

Cleveland—The fastening inquiry from the Chesapeake & Ohio railroad has just been issued and involves 11,608 kegs of 6 x ⅝-inch spikes; 1,116,354 of one type tie plates, 261,865 of another, and 12,217 of a third type of plate. Of each of the tie plate items 50 per cent is scheduled for delivery Dec. 15; 30 per cent Jan. 15, 1932; and 20 per cent Feb. 15.

Inquiry for rails from the Erie this year may be expected to involve around 35,000 tons, against 41,000 tons last year. However it will be the turn of the year or better before the inquiry is issued.

Bessemer & Lake Erie's Sharon, Pa., shops resumed Oct. 12 at 66 per cent of capacity. All employes laid off May 14 have been called back to work and the entire force is to work eight more days a month.

Car Orders Placed

Continental Oil Co., 30 tank cars to Pressed Steel Car Co., Pittsburgh.

Car Orders Pending

Navy department, three flat cars; General American Car Corp. and Haffner-Thrall Corp., Chicago.

Rail Orders Pending

Chesapeake & Ohio, 9000 tons fastenings to accompany recently awarded rail order of 45,000 tons. Fastening inquiry involves the following: 11,608 kegs 6 x ⅝-inch spikes; 1,116,354 one type; 261,865 another; and 12,217 of a third type tie plate.

Tin Plate Price Cut May Firm Up Users' Stocks

Tin Plate Prices, Page 51

Pittsburgh—Tin plate specifications and operations are steady, production remaining at slightly above 40 per cent. The recent reduction of 25 cents a box to $4.75 on business placed for fourth quarter and the first half of 1932 is expected to have a beneficial effect upon shipments in dissuading consumers from reducing their stocks to an abnormal degree in anticipation of a reduction later in the year.

Mirrors of Motordom

(*Concluded from Page* 23)

ahead. In exact keeping with the rest of motordom, it is seeing how long the introduction of new models can be deferred, though ultimately something new from Chrysler, DeSoto and Dodge is a confident expectation.

Machinery is now being shipped into Detroit for the assembly of the new low-priced car Studebaker capital is backing. Its assembly has been set on for the Detroit Studebaker No. 1 plant. George M. Graham, formerly sales manager of Willys-Overland, is affiliated with the new car.

Aside from the existing low-priced models from Ford, Chevrolet and Plymouth, the interest of Detroit is centered on the probable offering of three more. One from the Studebaker interests, one from Hudson-Essex, and the third from an established Detroit maker of medium priced models who prefers its name withheld, will be the supplements.

Hudson-Essex as well as Graham have radical changes in their existing models in mind. Engineers from Graham have indicated sweeping revisions.

Hudson is counted on to raise its price, Essex too, and thereby make room for a lower-priced offering from that plant.

Were steel mills to buy as much scrap as possible from wreckers of automobiles they would start a chain of buying which might enable the automobile industry to lead business out of the wilderness much as it did in 1921, declares Wyn Kesselman, of Wyn's Auto Wrecking Corp. Ltd., Los Angeles, in a letter to this department.

Of the 25,000,000 motor vehicles in the country fully one-sixth are unsafe, and their removal would not only increase the safety of the highways but also open up a tremendous market for new cars, according to Mr. Kesselman. But junking on so large a scale can be accomplished only if the mills will take the scrap off the wreckers' hands, enabling them to pay the fair prices that would induce scrapping.

◆

Ford has blown out a blast furnace at the Fordson plant for relining. . . . A survey discloses a density of 8 automobiles per mile for the 3,016,000 miles of road in the United States. . . . J. Jedwinka, chief engineer, Edward G. Budd Mfg. Co., forecasts that the railroads will take their cue from automobile designers and streamline their cars and locomotives. . . . Russian engineers claim success for the use of gas generated from charcoal as a substitute for gasoline. . . . Edward G. Budd Mfg. Co. purchased more castings and machine tools in August and September than in the corresponding months since 1928. . . . Steel wheels now are factory equipment on close to 90 per cent of all cars and trucks.

Will Discuss Scrap Lists

Committees representing the American Railway association and the Institute of Scrap Iron and Steel Inc. will meet at Pittsburgh, Oct. 14, at the semiannual conference of the institute to discuss a revision of scrap classifications. Frank Parker, Chicago, is chairman of the institute committee.

Structural Shapes

Two Chicago Schools, 2000 Tons Each, Placed—Inland Freight Terminal and Bronx Courthouse Sublet — Fabricated Price Weakness Still Apparent

STRUCTURAL SHAPE PRICES, PAGE 51

New York—Bridges at Troy and Albany, about 10,000 tons, and three government buildings at Washington, taking 21,000 tons, are the most impressive pending projects. While not active a section of the West Side elevated highway, 12 000 tons, and five docks, New York, are expected to come out within a few weeks. In general, however, fresh inquiry is light as are awards. A subway section at Newark, 1900 tons, has been placed, the largest award in this district. Prices on plain material are 1.70c, eastern mills, but fabricated bids on any tonnage bring out low and erratic figures.

Boston—Government and state work comprise the bulk of interest in this district. The Hartford postoffice has been let. Few jobs are pending requiring more than 300 tons.

Philadelphia—Buying is light with award of 1500 tons for the municipal drive, west side of the Schuykill river, expected shortly. Shapes continued unsettled at 1.70c, eastern mill.

Pittsburgh—New work in fabricated structural steel is quiet so far as large lots are concerned, while inquiry for smaller lots is steady. The market usually is 1.60c, Pittsburgh.

Chicago—Structural mills lead in activity among heavy finished departments. Over 10,000 tons has been let, including 4000 tons for schools in Chicago. About 2000 tons more will be required for school construction. Plain material prices are quoted 1.65c to 1.70c. Low bids on public construction have brought continued pressure against the mills for prices comparable with general contract figures.

Buffalo—Buffalo structural steel board of trade has presented a petition to the city council asking the purchase of $200,000 worth of fabricated material needed for the new Michigan avenue bridge so that the contract may surely go to some local concern. Six fabricators here signed the petition.

Cleveland—Bids on the foundation work for the city's underground garage have been taken and bids on the superstructure are awaited. It is unknown at this time how much structural the latter will take. Several small-sized jobs have been placed though their aggregate is inconspicuous. Plain shapes are 1.60c, Pittsburgh.

Birmingham, Ala. — Structural business has not maintained a pace anticipated a few weeks ago and shop operating schedules have been lower recently, three days the week being average. With a few exceptions, contracts coming in are for 100 tons at most.

Contracts Placed

23,350 tons, inland freight terminal, Port Authority, New York, to American Bridge Co., Pittsburgh, sublet through Taylor-Fichter Steel Construction Co., New York, as noted in STEEL, Oct. 5; Turner Construction Co., contractor.

7342 tons, Bronx county court house, Bronx county, N. Y., to McClintic-Marshall Corp., Bethlehem, Pa., sublet through George A. Just Co., Long Island City, N. Y., award to latter being noted in STEEL, Sept. 24; William Kennedy Construction Co., Brooklyn, N. Y., contractor.

2500 tons, work for New York Central railroad, Fort Wayne, Ind., to Mt. Vernon Bridge Co., Mt. Vernon, O.

2000 tons, Rembrandt junior high school, Chicago, to Vanderkloot Steel Works, Chicago.

2000 tons, Gallileo junior high school, Chicago, to Gage Structural Steel Co., Chicago.

1900 tons, city subway, Newark, N. J., to McClintic-Marshall Corp., Bethlehem, Pa.

1500 tons, postoffice, Miami, Fla., to McClintic-Marshall Corp., Bethlehem, Pa., Ralph Sollitt & Sons Construction Co., Chicago, contractors.

1500 tons, highway bridge, Custer county, Okla., to unstated fabricator.

1370 tons, postoffice, Hartford, Conn., to unstated fabricator.

Awards Compared

	Tons
Awards, week ended Oct. 10	**24,540**
Awards, week ended Oct. 3	**41,441**
Awards two weeks ago	**16,437**
Awards this week in 1930..	**56,759**
Av. weekly awards, 1930....	**35,242**
Av. weekly awards, 1931..	**37,173**
Av. weekly awards, Sept...	**62,558**
Total awards to date, 1930..1,504,587	
Total awards to date, 1931..1,561,282	

906 tons, six sand barges for Pittsburgh Gravel Corp., Pittsburgh, to Jones & Laughlin Steel Corp., Pittsburgh.

850 tons, hospital building group, Pine Aire station, Long Island, N. Y., to American Bridge Co., Pittsburgh.

700 tons, bridge, Passaic river, New Jersey, to John K. Cook & Son, Clifton, N. J.; F. W. Schwiers Co., contractor.

700 tons, bridge spans at St. Louis, to Stupp Bros. Bridge & Iron Co., St. Louis.

520 tons, bridge, Lafayette avenue, Baltimore, to American Bridge Co., Pittsburgh.

500 tons, garage, Newark, N. J., to Breen Iron Works, Newark, N. J.

500 tons, sand and gravel plant for Six Companies Inc., Boulder City, Nev., to Pacific Iron & Steel Co., Los Angeles.

390 tons, postoffice, Brownsville, Tex., to Houston Structural Steel Co., Houston; A. J. Rife Construction Co., Dallas, Tex., contractor; 80 tons of bars pending.

350 tons, veterans' hospital, Newington, Conn., to Porcupine Co., Bridgeport, Conn.

320 tons, Hammot hospital, Erie, Pa., to Erie Steel Construction Co., Erie.

330 tons, postoffice, Cedar Rapids, Iowa, to Iowa Bridge Co., Des Moines, Iowa.

300 tons, court house, Greenville, Mass., to Haarman Steel Co., Holyoke, Mass.

280 tons, hospital, Willimantic, Conn., to Bethlehem Fabricators Inc., Bethlehem, Pa.

280 tons, No. 6 turbine foundation, Kearney, N. J., for United Engineers & Constructors, to Shoemaker Bridge Co., Pottstown, Pa.

270 tons, state bridge, Latrobe, Pa., to McClintic-Marshall Corp., Bethlehem, Pa.

250 tons, sheet piling, two bridges, Atchafalya river, Louisiana, to Jones & Laughlin Steel Corp., Pittsburgh; Foundation Co., Pittsburgh, contractor.

250 tons, factory addition, American Shoe Findings Co., Whitman, Mass., to American Bridge Co., Pittsburgh.

250 tons, airplane hangar, 5036-38 West Sixty-third street, Chicago, for American Airways Inc., to Joseph T. Ryerson & Son Inc., Chicago, through Austin Co., Cleveland.

250 tons, sheet piling, cofferdam, Brooklyn, N. Y., navy yard, to Bethlehem Steel Co., Bethlehem, Pa., through Hart & Early, contractors.

241 tons, decking beams, Brooklyn, N. Y., to McClintic-Marshall Corp., Bethlehem, Pa.

230 tons, bridge for St. Louis-San Francisco railroad, to Virginia Bridge & Iron Co., Roanoke, Va.

227 tons, water gas and boiler building for Allied Engineers, Royal Oak, Mich., to McClintic-Marshall Corp., Bethlehem, Pa.

220 tons, highway bridge, route 2, section 6, for New Jersey state highway commission, to American Bridge Co., Pittsburgh.

210 tons, maintenance work, duct communication system Pennsylvania railroad, to Belmont Iron Works, Philadelphia.

210 tons, state bridge, New Hampshire, to American Bridge Co., Pittsburgh.

200 tons, highway bridge, Roberts, Idaho.

to Minneapolis-Moline Power Implement Co., Minneapolis.

200 tons, municipal building, Maplewood, N. J., to Selbach-Meyer Co., West New York, N. J.

196 tons, medical arts building, Watertown, N. Y., to Leach Steel Corp., Buffalo.

185 tons, bridge, Croxton, N. J., for Erie railroad, to American Bridge Co., Pittsburgh.

150 tons, bridge, Milford, Conn., to McClintic-Marshall Co., Bethlehem, Pa.; Charles Smith & Son, contractor.

150 tons, bridge, Uxbridge, Mass., to Boston Bridge Works Inc., Boston.

150 tons, residence, East Seventieth street, New York, to George A. Just Co., Long Island City, N. Y., through Hegeman-Harris Co.

150 tons, state highway bridge, Connecticut, to McClintic-Marshall Corp., Bethlehem, Pa.

135 tons, bridge, for Chicago, Milwaukee, St. Paul & Pacific railroad, Neola, Iowa, to Wisconsin Bridge & Iron Co., Milwaukee.

135 tons, roof supports, tunnel No. 2, board of water supply contract, to Commercial Shearing & Stamping Co., Youngstown, O.; Patrick McGovern Inc., contractor.

125 tons, theater, Florence and Compton streets, Los Angeles, to Kyle Construction Co., Los Angeles.

100 tons, building, Little Sister of the Poor, Pittsburgh, to Keystone Engineering Co., Pittsburgh.

100 tons, packing plant, Highland, Calif., to Nigg Engineering Co., Los Angeles.

100 tons, school, Montville, N. J., to Passaic Steel Co., East Rutherford, N. J.

100 tons, bridge, Hartford county, Md., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

100 tons, bridgework, Indiana, to McClintic-Marshall Corp., Bethlehem, Pa.

Contracts Pending

20,000 tons, state bridges, Troy and Albany, N. Y.

12,000 tons, estimated, Supreme Court building, Washington; bids Oct. 21.

1500 tons, Third street bridge, San Francisco; bids opened.

1500 tons, municipal development, west bank Schuylkill river, Philadelphia; award expected shortly.

1200 tons, junior high school, Mt. Vernon, N. Y.; bids in.

1000 tons, Y. M. C. A. building, Brooklyn, N. Y.

1000 tons, plant, Owens-Illinois Glass Co., Alameda, Calif.; bids to be called for at once.

800 tons, sheet piling, grade elimination, Whitehall, N. Y., for Delaware & Hudson railroad; bids closed Oct. 6.

700 tons, armory, Peekskill, N. Y.; bids Oct. 14.

626 tons, sheet steel piling, San Gabriel river outlet project for Los Angeles county, Calif.; Sheet Steel Piling Corp., Los Angeles, low.

550 tons, highway bridge, Iowa.

550 tons, agricultural economics building, Cornell university, Ithaca, N. Y.; Wark & Co., Philadelphia, contractor.

500 tons, post office, Jacksonville, Fla.

420 tons, pier No. 23, San Francisco; Herrick Iron Works, Oakland, Calif., low.

400 tons, Y. M. C. A., Erie, Pa.; Erie Steel Construction Co., Erie, low.

350 tons public school 242, Queens, N. Y.; bids in.

300 tons, state highway bridges, Maryland.

300 tons, bridge, Floral Park, N. Y., for Long Island railroad.

300 tons, naval armory, New Rochelle, N. Y.; bids Oct. 14.

300 tons, St. Elizabeth's hospital, Washington; bids Nov. 17.

200 tons, bridge, Western Maryland railroad.

200 tons, state bridge, Hudson Falls, N. Y.

200 tons, highway bridge, Nebraska.

200 tons, approximately, storage buildings, United States engineers, Washington; bids Oct. 20.

120 tons, service station, Connecticut Light & Power Co., Meriden, Conn.

100 tons, two bridges, Chester county, Pa.

100 tons, county bridge, Painesville, O.; bids Oct. 12. Included are 30 tons bars.

100 tons, approximately, two-story service station, Chester and Thirteenth streets, Cleveland, for Goodyear Tire & Rubber Co., Akron, O.; architect drawing plans.

Concrete Bars

Awards Diminish and New Inquiry Slackens — Public Highway, Bridge and Building Still Leads — Cut Lengths Not Tested on Average Purchases

REINFORCING BAR PRICES, PAGE 51

Chicago—About 1000 tons of reinforcing bars is being figured. General contracts on 72 Illinois highway and bridge projects, and seven public institutions, have been held up for an indefinite period because of interpretation by state's attorney general that a recent court decision makes the state prevailing wage law unconstitutional. About 3000 to 5000 tons of reinforcing bars are affected, pending appeal of the case to the state supreme court. Concessions have been made in recent attractive orders for billet bars. Minimum price is 1.60c.

Boston—Few projects taking more than 100 tons are before this market. The Christian Science Publishing society development is an exception and is likely to take close to 1000 tons. Prices are inclined to be easy. For a pier at Providence, R. I., about 425 tons were placed.

New York—Fresh inquiry is light, limited largely to public works, highways and bridges. While efforts are being made to hold prices at 1.60c, Pittsburgh, for mill lengths and 1.75c for cut material, these figures have not been tested on tonnage lots—and when they have been in recent weeks, price concessions have been made.

Philadelphia — Reinforcing bars' price is easy at 1.50c to 1.55c, Pittsburgh. Fresh inquiry includes a municipal development, west side, Schuykill river.

Pittsburgh—Usual seasonal decline is noted in new business. A fair volume of work still is pending. Activity in awards and new inquiry continues light. Mill length billet bars usually are quoted 1.60c.

Buffalo—Demand promises to show a very material improvement toward the end of October, particularly in central New York. Several good sized tonnages of mesh will be purchased by road builders and larger school construction also is indicated.

Cleveland—Though the largest volume of reinforcing steel jobs in many months is before the market, closing on the steel requirements is slow on those jobs which have reached the contractor stage. Bethlehem Steel Co. has taken 509 tons in the Alum creek project, Columbus, O., and a 140-ton state bridge, Athens, O., has been placed. Cut lengths, Cleveland, are 1.75c, on small lots placed.

Awards Compared

	Tons
Awards, week ended Oct. 10	**2,434**
Awards, week ended Oct. 3	**5,817**
Awards two weeks ago	**4,981**
Awards this week in 1930	**8,027**
Av. weekly awards, 1930	**6,990**
Av. weekly awards, 1930	**6,776**
Av. weekly awards, Sept.	**6,672**
Total awards to date, 1930	**293,306**
Total awards to date, 1931	**284,587**

Contracts Placed

509 tons, Alum creek storm standby tank, Columbus, O., to Bethlehem Steel Co., Bethlehem, Pa., through D. W. McGrath & Sons Co., Columbus, contractor.

425 tons, state pier, Providence, R. I., to Kalman Steel Corp., Bethlehem, Pa.

400 tons, high school, Whitefish Bay, Milwaukee, to R. L. Gilbertson, Milwaukee; Paul Riesen's Sons Co., Milwaukee, contractor.

260 tons, sewer, Thirty-ninth street, New York, to National Bridge Co., Long Island City, N. Y.; Remo Construction Co., contractor.

254 tons, highway work, San Benito

(*Concluded on Page* 59)

Strip

Recent Shading by Small Makers Fails to Cut Market—Small Gain Shown in Buying

STRIP PRICES, PAGE 51

Pittsburgh—Strip inquiry is more active and orders slightly more numerous. One producer reports the best activity in six months, most of which, however, was confined to inquiry. Tonnage booked shows only a mild gain but the outlook for better demand from the automotive industry is improved. Prices continue steady at 1.55c and 1.65c for hot strip. The minimum on cold-rolled strip generally is 2.15c, with 2.25c prevailing on some business. Mill operations hold at 15 to 20 per cent.

New York—Strip buying is from hand-to-mouth, with prices steady at 1.55c and 1.65c, Pittsburgh, on hot-rolled, and 2.15c, Pittsburgh, on cold-rolled.

Philadelphia—Buying of strip steel is unchanged, although a better tone prevails, with prospects for improvement in the automotive lines shortly. Hot-rolled strip, according to width, is 1.55c and 1.65c, Pittsburgh. Cold-rolled strip is 2.15c, Pittsburgh.

Youngstown, O.—Makers of cold-rolled strip are holding undeviatingly to a minimum of 2.15c, Pittsburgh. In small lots measured in pounds, 2.25c actually is being done. The fact appears to be that larger mills are not reconizing the recent price-cutting incident as market-making. Demand for hot-rolled is fair, with valley mills doing about 40 per cent and quotations firm here and with competing outside mills.

Cleveland—For the larger sellers of cold-rolled strip, 2.15c, Cleveland base, is apparently adhered to. In several isolated instances on attractive lots small nonintegrated cold rollers have cut this figure $2 and $3 a ton under the market though the tonnage placed at this figure does not affect the market minimum of 2.15c. Inquiry for hot-rolled is somewhat improved, with 1.55c and 1.65c, Pittsburgh, holding for the two widths. As October progresses, hot-rolled volume has increased. There has been some specifying from toy-making interests and several good-sized automobile orders have been placed.

Operations 29 Per Cent Last , 28-29 This Week

Pittsburgh—No immediate gain is seen for open-hearth operations which currently average around 25 per cent, down one point from last week. Blast furnace schedules are unchanged at 10 active steelworks sacks of 54. Finishing mill operations are steady with sheets at 30 and tin plate slightly above 40 per cent. Strip holds at 15 to 20 and pipe 25 to 30 per cent.

Philadelphia—Steel output last week was unchanged at 30 per cent of capacity with a leading mill in this district at silghtly over this figure.

	Per Cent
Operations, week ended Oct. 10	29
Operations, week ended Oct. 3..	29
Operations, two weeks ago	29
Operations, this week, 1930	52
High for 1931 (March 19).....	57
Low for 1931 (Sept. 8).....	28

Buffalo—Steelworks, after having reached a peak of 43 per cent in operations during the week just ended, are expected to drop back to about a 35 per cent rate during the next six days. Alternate weeks of operation in one district plant are responsible for the fluctuation.

Youngstown, O. — Ingot activity last week averaged 28 per cent, two points down from the week before. For this week there is indication that little improvement may be expected. Youngstown Sheet & Tube Co. operations last week were on a 20 per cent basis with little change from that rate indicated for the current week. Mahoning valley plants of Republic Steel Corp. were operating at 35 per cent of capacity and are expected to continue at that level while Carnegie Steel production is continuing on a 40 per cent basis. Sharon Steel Hoop Co. operates at 20 per cent. Increase in sheet production, with resumption of operations in three plants idle recently, was the most favorable development of the week. Some automobile steel has been placed with valley sheet and strip makers. Offsetting last week's improvement in flat steel demands is a drop in pipe buying.

Cleveland—Steel production enters this week the same as last, at 35 per cent of capacity with 11 open-hearth furnaces active. Addition of one open hearth at the plant of the leading independent was countered by loss of one from activity this week at another plant.

Chicago—No change has occurred in steelworks operations, which again this week are scheduled for 28 per cent. Finishing department schedules are virtually the same as a week ago. Sheet mill activity has dropped 5 points, to 30 per cent.

Birmingham, Ala.—Operations last week were unchanged at 30 per cent capacity, based on ingot production. This week will continue on same schedule.

Blast furnace operations include two on foundry iron by Sloss-Sheffield; two larger furnaces of Tennessee Coal, Iron & Railroad Co. at Fairfield and one at Ensley on basic, with one of Fairfield's to blow out at once for repairs; one furnace producing and one banked at Thomas for Republic Steel; two on foundry operating slowly and one to blow out.

Warehouse Sales Hold, but Thereby Prove Disappointing

Warehouse Prices, Page 73

New York—Volume continues at a low point. While sales hold to September's average, few jobbers report any improvement. Prices are nominally unchanged, but concessions are evident on occasional attractive business.

Pittsburgh—Sales are slow and unimproved so far this month. Orders are restricted in size as well as number, and cover material urgently needed. Prices are unchanged.

Detroit—Buying from the steel jobbers here shows no improvement, yet no major declines. Tonnage during September remained on a par with that of virtually every month since June. Greatest activity is to be noted in tool and die shops.

Cincinnati—Jobbers note little change in demand from the last two months, small orders predominating. Seasonal influences apparently are ineffective. Quotations remain unchanged.

Chicago—October warehouse orders are failing to gain over September. City sales are slightly heavier than those in outlying territory. Hot-rolled bar products are moving fairly well. Prices are unchanged.

St. Louis—The past several days have developed slight betterment in the movement of certain lines from warehouse, but generally the trade continues quiet. Orders are mainly for small individual lots for prompt shipment.

Concrete Bars Placed

(*Concluded from Page* 55)

county, Calif., to unnamed interest.

230 tons, service station, Philadelphia Electric Co., Philadelphia, to Kalman Steel Corp., Bethlehem, Pa.

200 tons, Marquette university, Milwaukee, to Concrete Steel Co., New York.

170 tons, school, Newark, N. J., to Truscon Steel Co., Youngstown, O.

140 tons, state bridge, Athens, O., to Jones & Laughlin Steel Corp., Pittsburgh, through C. R. Boulton, Columbus, O., contractor.

100 tons, highway, Tanners Corner, N. J., to Buffalo Steel Co., Buffalo, N. Y.

Contracts Pending

800 tons, both bars and mesh, parcel post building, New York.

542 tons, highway work, San Mateo county, Calif.; bids opened.

500 tons, Union station power house, Chicago.

450 tons, sanatorium, Shelton, Conn.

400 tons, municipal development, west bank of Schuylkill river, Philadelphia.

350 tons, apartment, Fort Jay, Governor's Island, N. Y.; J. R. & J. A. Whelan, Taunton, Mass., low on general.

330 tons, viaduct, New York Central, near Eighteenth street, New York.

300 tons, high school, Elgin, Ill.

250 tons, Tri-boro bridge piers, New York, Rogers & Haggerty, low on general.

223 tons, highway work, San Luis Obispo county, Calif.; bids Oct. 7.

150 tons, mesh, Mohawk-Little Falls, N. Y., highway; Arborioa Road Construction Co., Hartford, Conn., low.

150 tons, Dvorak junior high school, Chicago, general contract to D. E. Anderson Co., Chicago.

Judges Are Appointed in Drill Jig Competition

In connection with its competition for best designs of drill jigs in each of several types specified as model jigs by American Machinery and Tools institute, 40 North Wells street, Chicago, announcement is made of appointment of judges.

The judges are: F. Quick, Associated Management Engineers; A. C. Rolfing, Grigsby Grunow Co.; R. Kresberg, R. Kresberg & Sons; E. R. Prout, Teletype Corp.; and J. S. Kozacka, Lewis institute. The competition closes on Oct. 30, 1931.

Would Enforce Tax on Prison-Made Stoves

Stove manufacturers in Atlanta and Rome, Ga., backed by the local molders unions, have asked state authorities and, through them, the county tax collectors of Georgia to enforce the provisions of the Georgia general tax act which place a tax of 15 per cent upon all prison-made goods sold in the state.

The product particularly complained of by the manufacturers and workers was stoves made by a stove works said to have foundries and assembly plants within the walls of the Tennessee state prison.

To Show Heating Progress

The Second International Heating and Ventilating exposition, to be held in the Auditorium Annex, Cleveland, Jan. 25-29, 1932, under the auspices of the American Society of Heating and Ventilating Engineers, is being planned to show the progress and development which has been made in heating, ventilating and air conditioning since the first exposition in Philadelphia two years ago.

What Russia Imported, Exported in First Half

Russia exported 378,480 tons of manganese, valued at 5,449,000 rubles ($2,725,000) in the first half of 1931, according to the USSR Chamber of Commerce for Western Trade. Imports in the first half year included:

	Tons	Value
Iron and steel	614,126	$27,844,000
Nonferrous metals	54,724	12,198,000
Machinery, except agricultural	70,769	42,557,000
Agricultural machines, except tractors	103,153	47,365,000
Machine parts, except agricultural	47,175	24,275,000
Tractors	75,895	39,300,000
Tractor parts	5,565	4,662,000
Iron and steel products	109,225	21,297,000

Pipe

Continental Construction Co. May Place 40,400-Ton Line— Begin To Ship 32,000 Tons Cast

PIPE PRICES, PAGE 73

Chicago—Continental Construction Co. has not as yet issued active inquiry for about 40,000 tons of 20-inch line pipe, but has a right of way to Milwaukee for an extension to its Texas-Chicago line and an inquiry is expected. The Cities Service Co. is identified with this project. Several filtration plant extensions promise moderate miscellaneous cast pressure pipe business. Ft. Wayne, Ind., is added to recent inquiries. Milwaukee's award of 1800 tons of 24 to 54-inch pipe at $34 is in line with prices recently quoted.

New York—Prices appear slightly firmer on small lots, but have not been tested on any volume business of late. New York is in the market for approximately 1500 tons, mostly 8-inch. Two jobs upstate, 900 tons, have been placed with a Pennsylvania foundry. Williamson Construction Co. holds the contract for a dam at Ridgway, Pa., taking 600 tons and a like tonnage is up for Washington,

Boston—Less than 1000 tons of cast pipe are active here including 400 tons for a state hospital on which bids are in. Prices are unsteady. Boston purchased several hundred hydrants recently.

Pittsburgh—Standard pipe demand is slow to feel the seasonal upturn usually developing at this time for heating work. Oil country goods remain slow, demand being light from all districts except the east Texas field. Little business is being received for miscellaneous line pipe work and awards of large lines are lacking.

Cleveland—Handicapped by the restriction in building operations, movement of standard pipe through the jobbing interests here is extremely dull, with many jobbers virtually inactive. Line pipe inquiries or purchasing are absent.

Birmingham, Ala.—Three shops with machinery to produce 36-inch pipe in Birmingham district are now operating steadily, filling order for 32,000 tons of pipe for Lincoln, Nebr., first shipments being made last week.

Steel Pipe Placed

1250 tons, small sized steel pipe for unstated oil company to Jones & Laughlin Steel Corp., Pittsburgh.

Cast Pipe Placed

32,000 tons, 36-inch, Lincoln, Nebr., to United States Pipe & Foundry Co., East Burlington, N. J.; reported in STEEL, Oct. 5 to United States Pipe & Foundry Co., and National Cast Iron Pipe Co., Birmingham, Ala.

1800 tons, 24 to 54-inch pipe for Milwaukee, to United States Pipe & Foundry Co., East Burlington, N. J., at $34; also 200 tons of special fittings and lugged pipe to same foundry.

450 tons, 8-inch, Bedford Hills, N. Y., to Donaldson Iron Works, Emaus, Pa.

450 tons, 8-inch, Dannemora prison, N. Y., to Donaldson Iron Works, Emaus, Pa.

150 tons, 6 to 10-inch, Hartford, Conn., to R. D. Wood & Co., Philadelphia.

» » » » » »

MADE BY CONTINUOUS PROCESS

"Pioneers in Continuous Sheet Rolling"

They meet the battering charge of POWERFUL PRESSES with greater prime yield . . . .

BLANKS of Armco special analysis steel sheets—thousands of them—run the gauntlet of powerful, punishing presses without running up the rejection percentages to unprofitable heights.

The yield is consistently good because these special sheets are produced expressly to meet the customer's requirements. Every operation from open hearth furnaces to finishing mills must contribute definitely and unswervingly to this sole objective.

Only a metal created with a complete understanding of the fabricator's requirements can survive the ordeal of the presses and make a creditable showing. Armco engineers always get the facts, and the sheet metal invariably *matches those facts* when it reaches the customer's plant.

We shall be glad to send one of these experienced engineers to your plant, to study your particular problems in stamping, drawing and surface finishing. Just communicate with the office nearest you.

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thru WLW—700 kc., W8XAL—6060 kc. (short wave)

9 o'clock—Eastern Time
8 o'clock—Central Time
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ARMCO
IRON AND STEEL
SHEETS EXCEPTIONAL QUALITY PLATES

25,000 feet, 2, 4, 6 and 8-inch, for Bethel, O., being purchased by contractor.
12,000 feet, 4, 6 and 8-inch pipe for Ambia, Ind., to McWane Cast Iron Pipe Co., Birmingham, Ala.
2100 feet, 12-inch pipe for Marshfield, Wis., to Central Foundry Co., Ft. Wayne, Ind.

Cast Pipe Pending

1725 tons, 6 to 20-inch class B or equal, Long Beach, Calif.; bids Oct. 7.
1644 tons, 4 to 8-inch class B or 150 or 250, Oakland, Calif.; National Cast Iron Pipe Co., Birmingham, Ala., and Pacific States Cast Iron Pipe Co., Provo, Utah, low bidders.
1500 tons, mostly 8-inch, department of water supply, gas and electricity, New York; bids Oct. 14.
600 tons, 30-inch, Washington; bids Oct. 23. Twenty-seven tons special castings also included.
400 tons, 8 to 10-inch, state hospital, Medfield, Mass.
5000 feet, various sizes, wrought iron pipe, Fort Benning, Ga.

Steel Pipe Pending

40,400 tons, 20-inch, 170-mile line for Continental Construction Co. Right of way acquired to Milwaukee from Texas-Chicago line. Formal inquiry expected.
4000 tons, presumably 10-inch seamless, for 40-mile line from Syracuse, N. Y., to Lake Ontario, being considered by Sun Pipe Line Inc., subsidiary of Sun Oil Co.
1000 feet, 20-inch, United States engineer, Philadelphia.

Semifinished Demand Shows Improvement in Spots

Semifinished Prices, Page 62

Pittsburgh—Shipments of semifinished steel show practically no change so far this month, reflecting the low rate of finishing mill operations. New business is in small lots and usually at unchanged prices of $29 for rerolling billets, slabs and sheet bars, $35 for forging billets and wire rods.

Pittsburgh—Demand for billets is slightly improved. Prices are unchanged at $29, Pittsburgh, for rerollers and $35 for forging quality.

Youngstown, O.—Shipments of billets, sheet bars and slabs have continued so irregular that producers have paid little attention. This is laid to intermittent operations of valley sheet and strip mills. Open-hearth operations have not changed in the week. Billets, sheet bars and slabs bring $29, Youngstown and Pittsburgh.

Cleveland—Due mainly to a gain in specifications for semifinished, the leading independent stepped up its open-hearth operations Oct. 9 to have six of 14 active. This is its highest rate since early June. Sheet bars, billets and slabs are $29, base, Cleveland.

Wire

Jobber Specifications on Low-Priced Contracts Give Some Impetus—Prices Fairly Steady

WIRE PRICES, PAGE 51

Chicago—No improvement is noted in common wire products. Jobbers are buying in scattered lots. Except in the Northwest, orders for farm fencing are negligible. Buyers have been pressing for lower prices as a result of quiet business, but so few contracts are made that no test is shown. Manufacturers' wire is quoted nominally at 2.25c, Chicago or western mills.

Worcester, Mass. — Production of wire is holding its own, though shipments are generally small. Some slight seasonal upturn is looked for during the next two months though orders will probably remain small. Prices are firm at 2.30c.

New York—Wire nails are quiet at $1.90, Pittsburgh. In practically all cases, it appears, the $1.80 tonnage has been shipped. Nails are 2.20c, Pittsburgh, with a slight gain in specifications over the past 10 days.

Philadelphia—Wire products are quiet and unchanged with the market generally $1.90, Pittsburgh, on wire nails to jobbers and plain wire 2.20c, Pittsburgh.

Pittsburgh — Shipments of wire products so far this month are substantially heavier than in the corresponding September period, resulting from the closing out of old contracts. Practically all jobbers have added to stocks and it is problematical when disposition of this material will necessitate new buying. The anticipatory purchases lend a stronger tone to the price situation, although a test of quotations still is lacking. The market to jobbers on wire nails is $1.90, with manufacturers' wire 2.20c and wire rods $35.

Cleveland — Following the late-September specifying of wire and wire products, orders have been somewhat subsided, though the minimum is well maintained. Slowness to order out earlier entered into contracts is marked. Nails are steady at $1.90 a keg to jobbers, $2 to the trade; 2.20c is the asking price on plain manufacturers' wire and rods are $35 a ton.

Bolt, Nut, Rivet Volume Steady; Some Shading Done

Bolts, Nuts, Rivets Prices, Page 51

Pittsburgh — Specifications for bolts, nuts and rivets have shown practically no change so far this month compared with the quiet September rate. Prices show more stability following the recent reduction of rivets although occasional shading on bolts and nuts is heard. Structural rivets are 2.25c, Pittsburgh, with bolts and nuts 73 and 10 off.

Chicago—Further weakness exists in prices for bolts and nuts, while resale prices are irregular, according to reports from jobbers. A few orders have appeared from implement works and it is indicated that several will resume in about 30 days. Small rivets are unchanged at 70, 10 and 5 off. October specifications for bolts, nuts and rivets are slightly ahead of September, with production about 25 per cent.

Refractories Quiet but Sensitive to Change

Refractories Prices, Page 62

Pittsburgh — Refractory demand still reflects the quiet rate of operations of open-hearth and blast furnaces. Mills have sufficient equipment in condition to operate to accommodate a moderate increase in production, but will be forced to do considerable repair work were any substantial increase in schedules to occur. Users are carrying only small stocks of refractory brick and producers expect to note quickly any improvement in the steel markets. New construction work is almost entirely lacking, what business is being received is generally for repair work of an urgent nature. Refractory prices are fairly steady, with first quality fire clay brick $40 and second quality material $25 to $35. Silica brick is $40, magnesite brick $65.

Economic Essays Printed

Prize winning essays in the ninth Alvan T. Simonds economic contest for 1931, for which the subject was "Government interference with the free play of economic forces," have been printed in a pamphlet costing $1 and available through Mr. Simonds, of the Simonds Saw & Steel Co., Fitchburg, Mass.

Raw Material Prices

Pig Iron

Per Gross Ton

FOUNDRY, No. 2

Chicago furnace	$17.00 to 17.50
Pittsburgh, dist. fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Valley furnace	17.00
Cleveland fur., local del.	17.00
Philadelphia, delivered	16.76 to 17.26
Virginia furnace	17.50
Granite City, Ill., fur.	17.50
Buffalo, fur., local del.	17.00
Buff., all-rail, Boston	19.91 to 20.41
Buff., all-rail, Brooklyn	19.90 to 20.40
Buff., all-rail, Newark	18.28 to 18.78
Ala., Bir. fur., local del.	12.00
Alabama, del. Chicago	17.01
Alabama, del. St. Louis	15.42
Alabama, del. Cincinnati	14.69 to 15.19
Ala., Phila., dock del.	16.00 to 16.25
Ala., Balt., dock del.	16.00
Alabama, New York dock	16.50
Ala., Boston dock del.	16.50 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	14.69 to 15.19
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	17.50
Buff., all-rail, Brooklyn	20.90 to 21.40
Buffalo, all-rail Newark	18.78 to 19.28
Buff., all-rail, Boston	20.91 to 21.41
Virginia furnace	18.00
Eastern, del. Phila	17.26 to 17.76

FOUNDRY, NO. 1X

Buffalo fur., local del.	18.50
Eastern, del. Phila.	17.76 to 18.26

MALLEABLE

Valley furnace	17.00
Cleveland fur., local del.	17.00
Pittsburgh dist. fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Chicago, furnace	17.00 to 17.50
Buffalo fur., local del.	17.50
Eastern Penna., delivered	18.26 to 20.41
Granite City, Ill., fur.	17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	16.00 to 16.50
Pittsburgh, delivered	16.63 to 17.63
Eastern Penn., del.	16.50
Buffalo fur., local del.	16.50 to 17.00
Montreal, delivered	20.50
Valley, furnace	17.00

BESSEMER

Valley furnace	17.00
Pittsburgh, delivered	18.13 to 18.63
Pittsburgh, furnace	17.50

LOW PHOS.

Valley fur., standard	27.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	16.50
Pittsburgh district fur.	17.00
Pittsburgh, delivered	17.63 to 18.13

CHARCOAL

Lake Superior, del. Chi.	25.04

SILVERY

Jackson County, O., fur. in per cents: 6—$20; 7—$20.50; 8—$21; 9—$21.50; 10—$22; 11—$23; 12—$24; 13—$26.

BESSEMER FERROSILICON

Jackson County, O., fur. in per cents: 10—23; 11—$24; 12—$25; 13—$27; 14—$29; 15—$31; 16—$33.

Coke

Prices Per Net Ton

Beehive Ovens

Connellsville furnace	$2.40 to 2.50
Connellsville foundry	3.25 to 4.50
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.70 to 9.10
Chicago, ovens	7.50
New England, del.	10.50
St. Louis, del.	8.50
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	5.50
Portsmouth, O., ovens, Connell., basis	5.50
Buffalo, ovens	8.00 to 8.50
Detroit, ovens	8.00
Philadelphia, del.	8.75

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	10.00
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% manganese	10.00
North African low phosphorus	8.50
Swedish basic, 65%	9.00
Swedish low phos.	10.00
Spanish, North African basic, 50 to 60%	8.50 to 9.00
Newfoundland fdy., 55%	8.50
Tungsten, spot and future short ton unit, duty paid	$11.25 to $11.80
Chrome ore, 48% net ton c.i.f.	$21.50 to 22.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	26 cents
South African, 52%	24 to 26 cents
South African, 49-51%	23 to 24 cents
South African, 44-47%	22.50 cents
Indian, 48-50%	nom.
Brazilian, 46-48% (nom.)	nominal

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$40.00
Missouri	37.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 35.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	40.00
Joliet, Ill., East Chicago, Ind.	49.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$65.00

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	40.00
Domes, Chewelah, Wash., base	22.00

CHROME BRICK

Net ton, Chester, Pa., and Balt. base, 9 x 4½ x 2½	45.00

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$29.00
Pittsburgh, bessemer	29.00
Youngstown	29.00
Cleveland	29.00
Philadelphia	34.30
Chicago	30.00
Forging, Chicago	35.00 to 36.00
Forging, Pittsburgh	35.00
Forging, Philadelphia	39.30

SHEET BARS

Pittsburgh	29.00
Youngstown	29.00
Cleveland	29.00
Chicago	30.00

SLABS

Pittsburgh	29.00
Youngstown	29.00
Cleveland	29.00

WIRE RODS

Pittsburgh, Cleveland	35.00
Chicago	36.00

SKELP

All grades, Pittsburgh	1.60c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$85.00
*Ferromanganese, del. Pittsburgh	89.79
Spiegeleisen, 19-20%, domestic fur. spot†	30.00
Ferrosilicon, 50 per cent, freight all., c. l.	83.50
Do, less carload	88.50
Do, 75 per cent	130.00 to 150.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(Spot prices, $5 a ton higher.)	
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb., con. del.	11.00
Do, for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.10 to 1.20
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers' plants, net ton	150.00
Do, one-ton to c. l.	170.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50
Ferromolybdenum, stand. 50-60 per cent, per lb.	$1.00
Cal. Molybdate, lb. cont.	.85

†Carloads. Differentials apply to quant.
*To users of carloads to 500 tons annually. Differentials to large users.

Fluorspar

85 and 5 per cent grade

Washed gravel Kentucky and Illinois mines, per net ton	$13.00
Washed gravel, import duty paid east, tide, gross ton	18.50

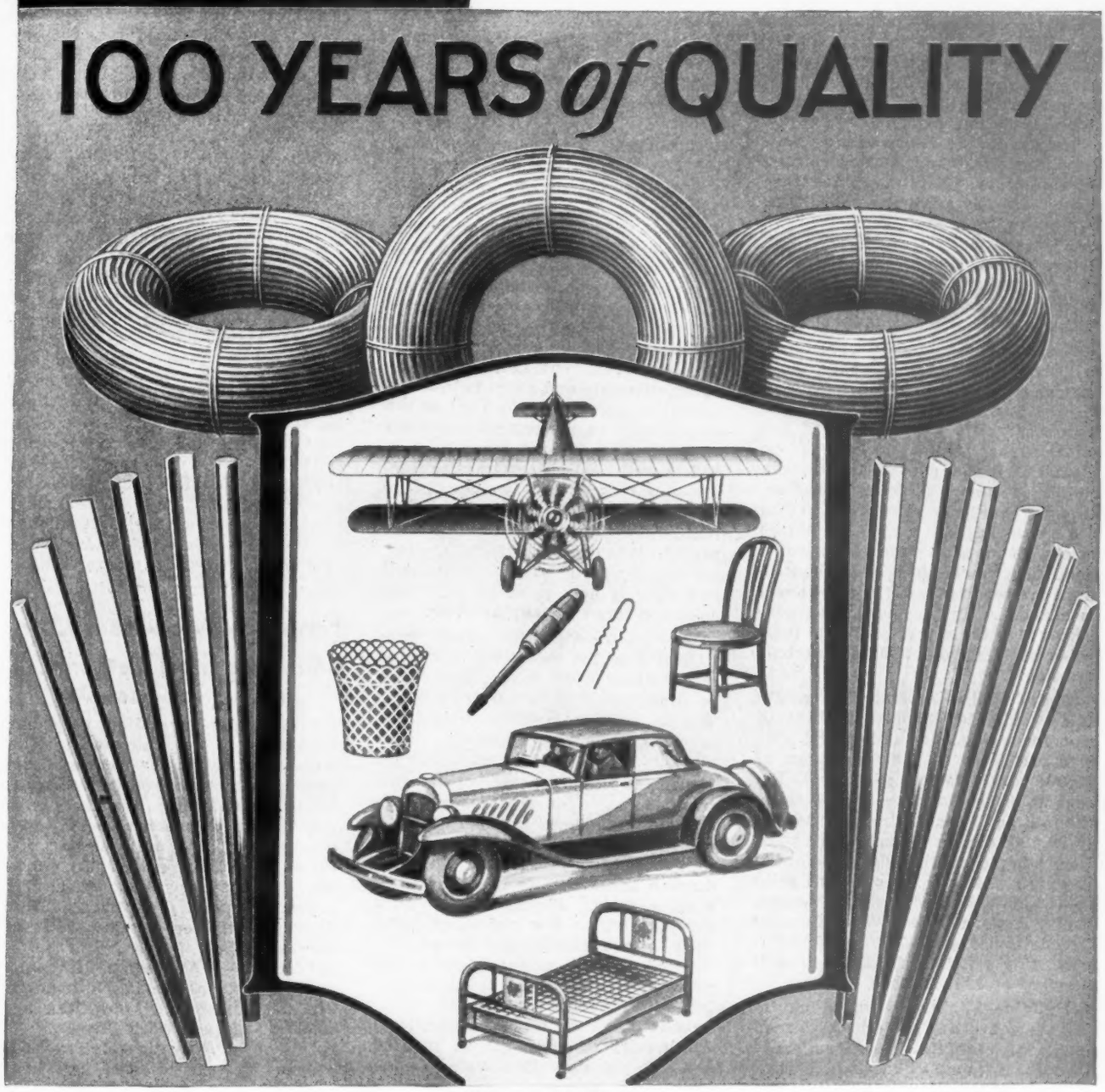
American QUALITY Steel & Wire Company

WIRE for Manufacturing

ONE HUNDRED YEARS of wire making experience is back of American Steel & Wire Company products—experience that will solve your most vexing problems quickly and efficiently.

When you require round, flat, square, octagon or other shapes of wire—communicate with us. Prompt delivery and complete engineering service are yours to command.

100 YEARS *of* QUALITY



1831 — COMMEMORATING 100 YEARS of PROGRESS IN WIRE MAKING — 1931

AMERICAN STEEL & WIRE COMPANY

208 South La Salle Street, Chicago — SUBSIDIARY OF UNITED STATES STEEL CORPORATION — And All Principal Cities

Pacific Coast Distributors: Columbia Steel Company, Russ Building, San Francisco

Export Distributors: United States Steel Products Company, New York

Pig Iron

Slight Trend Toward Larger Shipments — Receive Indian Iron in East—Chicago Price Off

PIG IRON PRICES, PAGE 62

Pittsburgh—Pig iron demand continues slightly ahead of the rate of the past two months, partly influenced by heavier shipments during the fore part of the month. Orders in all cases are confined to small lots and inquiry is lacking. Radiator producers still are operating considerably better than the average for all foundries, schedules of most jobbing interests being limited to two days a week. Sanitary ware producers are operating at a slow rate but better than at midsummer. Pig iron prices lack strength, but producers usually name $17, valley, for No. 2 foundry bessemer and malleable. The basic market is nominal with no sales being made.

Boston—Pig iron sales are slightly heavier, more than 2200 tons having been sold in the New England district during the week. The business was fairly well split with the local furnace taking the bulk of the business. A few cars of Indian iron sold at $19 and $20, dock. New England furnace iron sales were within the range of $17 to $17.50. While prices of outside iron are quoted nominally unchanged some concessions are reported and the price trend is mixed. A Bridgeport, Conn., consumer is in the market for 1200 tons. Sales of lots from 250 to 400 tons are noted.

Philadelphia—Arrival last month of approximately 3500 tons of Indian iron for a consumer at Pencoyd, Pa., is expected to be the forerunner of 10,000 to 15,000 tons additional. Recent shipments are understood to be the first against a contract for 15,000 to 20,000 tons made earlier this year. Domestic pig iron buying is profoundly quiet. Basic is off on small sales to $16.50, delivered eastern Pennsylvania. Eastern Pennsylvania foundry iron is easier at $16 to $16.50, furnace, this district. Southern iron is nominal at $11, furnace.

Buffalo—Slightly improved inquiry is reported from eastern buyers of pig iron. Buffalo quotations range from a $15 to a $16 base which some sellers are trying to establish. The latter group is refusing to sell below $16, it is claimed. Operations the past week have represented the producing ability of about 4½ furnaces, with a reduction scheduled this week of about half a unit.

Youngstown, O.—Small-lot buying of malleable and No. 2 foundry pig iron still is the rule, with only one merchant blast furnace blowing in the valley and that intermittently. Shipments include carloads and up to 100-ton lots and continue to be made merely as consumers' needs arise. Basic, bessemer, No. 2 foundry and malleable are quoted at $17, valley furnace.

Cleveland—Sustained volume of 100 and 200-ton lots of pig iron inquiries that became numerous since October opened continues. Bookings have not reflected a marked upward turn, though an increase is apparent over September. Shipments are unchanged from the September volume, but it appears a certainty that the last two weeks of October will lend an impetus in that direction. Commitments from jobbing foundries on automotive tool and small-production lots have gained but the melt of the general run of production foundries is light. The furnace price here of $17 is well held on the light character of purchases locally, there being no reflection from the recent reduction of 50 cents in the Chicago base to $17. It is pointed out that the latter figure was in large part nominal and thus is now more in line with asking prices in other districts.

Cincinnati—Pig iron sales were light during the past week, for a total of about 1000 tons. Shipments to some parts of this territory are slightly heavier, possibly on decision to carry a heavier inventory. The market is without fresh inquiry.

Chicago—Competition of a few small-lot sales of outside iron has brought a weakening of 50 cents in the base pig iron price, and the range is $17 to $17.50. This reduction is having no effect in stimulating sales. Buying hardly tests the market, as few orders of more than two carloads are closed. No marked change exists from recent conditions, other than the fact that lower price offers from sellers of outside iron have become recognized. An inquiry of 500 to 1000 tons of southern analysis iron still is open in central Indiana.

Two thousand tons of foundry iron and a large block of silvery iron are being figured for western Michigan automotive foundries.

St. Louis—While the movement of pig iron to consumers has been at a slightly higher rate than during September, new buying is light and confined to small lots for prompt shipment. Total sales the past week were less than 1200 tons. There has been little contracting for fourth quarter requirements. Prices remain unchanged on a basis of $11 for No. 2 southern and $17.70, furnace, for northern.

New York—Pig iron sales again are approximately 2500 tons. Fresh inquiry is light. A New England consumer wants 1200 tons. Buffalo prices are unchanged at $15 to $15.50, furnace, and eastern Pennsylvania producers at $15.50 to $16, furnace, for shipment into this territory.

Birmingham, Ala.—Fourth quarter has developed no buying. Melters are buying as needs appear, including cast iron pressure pipe makers who have put production up a little. Eight blast furnaces, operating the latter part of last month continue with two scheduled for banking or being blown out. Prices are unchanged at $12 for No. 2 foundry for home territory and $11 for outside shipment.

Toronto, Ont.—With the iron and steel industry still facing a period of uncertainty, demand for merchant pig iron is light. Melters are holding purchases to spot requirements and sales for the week were less than 500 tons. No sales or inquiries are appearing. Daily melt is around 50 per cent with some further reduction in prospect. Pig iron production is unchanged with three stacks blowing.

Ferroalloy Movement Low, Mirroring Steel Lethargy

Ferroalloy Prices, Page 62

Pittsburgh—Ferroalloy shipments remain at a slow rate and give no indications of early improvement. The September movement reflected lighter operations at steelmaking plants and shipments so far this month have been at a similar rate. Prices are unchanged but are receiving little test in the spot market. Ferromanganese continues $89.79, delivered, with spiegeleisen $30, furnace.

Chicago — Another recession has occurred in specifications for ferroalloys. Orders are below the September rate. Negotiations for a cargo of English spiegeleisen to be shipped to this market are being abandoned. Prices are unchanged.

Reduction in claims against railroads for loss and damage to freight has been 71 per cent from 1920 to 1930. In the former year these payments were $2.66 for every car loaded with revenue freight and in 1930 it was 76 cents.

Scrap

Slight Further Weakening as Consumers Buy Little—Supply Small in Nearly All Grades

Chicago—Further negotiations for a sale of heavy melting steel at 50 cents above the recent market have proved fruitless. All scrap grades are quiet, and the market is in a sensitive mood. Cast borings are being purchased by a pool of dealer interests for accumulation at the East Chicago docks, whence a cargo is likely to move eastward shortly. Most gray iron foundry grades are lifeless, as the foundry melt in the district is said to have receded even further. The long-term outlook appears a trifle more encouraging for the scrap market, as releases are so small that, even under 50 per cent steelworks operations for the district, the incoming supply would be inadequate.

Boston—Demand for scrap is lim-

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	7.00 to 8.50
Boston, dealers	4.10 to 4.60
Buffalo, No. 1	9.00 to 9.50
Buffalo, No. 2	7.75 to 8.25
Chicago	7.75 to 8.25
Cinci., deal.	7.25 to 7.75
Cleve., No. 1	8.50 to 9.00
Cleve., No. 2	7.50 to 8.00
Det., No. 1 deal.	6.00 to 6.50
Det., No. 2 deal.	5.00 to 5.50
E. Pa. del. mill	8.00 to 8.50
N. Y. deal. R. R.	5.00 to 6.25
N. Y. deal. No. 2	3.50 to 4.00
N. Y. deal. yd.	4.00 to 4.50
Pitts., No. 1	10.25 to 10.50
St. L. No. 1 sel.	8.00 to 8.20
Federal, Ill.	7.50 to 8.00
Granite City, Ill.	7.00 to 7.50
Valleys, No. 1	10.25 to 10.75

COMPRESSED SHEETS

Buffalo, dealers	7.75 to 8.25
Chi., (Factory)	7.00 to 7.50
Cleveland	7.50 to 7.75
Detroit, dealers	6.00 to 6.50
E. Pa. new mat.	8.00 to 9.00
Pittsburgh	10.00 to 10.50
Valleys	9.50 to 10.00

BUNDLED SHEETS

Buffalo	5.50 to 6.00
Cinci., deal.	6.75 to 7.25
Cleveland	6.50 to 7.00
Eastern Pa.	6.50 to 7.00
Pittsburgh	9.50 to 10.00
St. Louis	5.00 to 5.50

SHEET CLIPPINGS LOOSE

Chicago	3.75 to 4.25
Cincinnati	4.00 to 4.50
Detroit, dealers	3.50 to 4.00
St. Louis	5.00 to 5.50

STEEL RAILS SHORT

Birmingham	10.75 to 11.50
Boston, dealers	3.10 to 4.60
Buffalo	12.00 to 12.50
Chicago (3 ft.)	10.00 to 10.50
Chicago (2 ft.)	10.75 to 11.25
Cinci., deal.	12.50 to 13.00
Detroit, deal.	11.00 to 11.50
Pitts. (open-hearth, 3 ft. and less)	12.50 to 13.00
St. Louis	12.00 to 12.50

STOVE PLATE

Birmingham	6.50 to 7.00
Boston, con.	5.00 to 5.50
Buffalo	8.25 to 8.50
Chicago, net	6.00 to 6.50
Cinci., deal. net	4.50 to 5.00
Det., net deal.	4.00 to 4.50
Eastern Pa.	7.50 to 8.00
N. Y., deal. mill	4.75 to 5.50
St. Louis	6.50 to 7.00

COUPLERS, SPRINGS

Buffalo	11.00 to 11.50
Chicago	9.25 to 9.75
Eastern Pa.	13.00
Pittsburgh	11.50 to 12.00
St. Louis	8.50 to 9.00

ANGLE BARS—STEEL

Chicago	9.25 to 9.75
St. Louis	7.50 to 8.00

LOW PHOSPHORUS

Buffalo, billets and bloom crops	12.75 to 13.25
Cleveland bil. and bloom crops	12.00 to 12.50
Eastern Pa.	13.50 to 14.00
Pittsburgh billet bloom crops	14.00 to 14.50
Pitts sheet bar crops	13.00 to 13.50

FROGS, SWITCHES

Chicago	8.50 to 9.00
St. Louis	8.50 to 9.00

SHOVELING STEEL

Chicago	7.75 to 8.25
Cleveland	6.50 to 7.00
St. Louis	7.50 to 8.00

RAILROAD WROUGHT

Birmingham	7.50 to 8.00
Boston, dealers	8.00 to 8.50
Buffalo, No. 1	7.00 to 7.50
Buffalo, No. 2	9.00 to 9.50
Chicago, No. 1	8.00 to 8.40
Chicago, No. 2	7.75 to 8.25
Cinci., No. 2	7.25 to 7.75
Eastern Pa.	9.50
N. Y., No. 1, deal.	9.00 to 9.50
Pitts., No. 2	10.25 to 10.75
St. Louis, No. 1	5.00 to 5.50
St. Louis, No. 2	7.50 to 8.00

SPECIFICATION PIPE

Boston	4.00 to 4.25
Eastern Pa.	9.50 to 10.00
N. Y., deal.	5.00 to 5.50

BUSHELING

Buffalo, No. 1	7.75 to 8.25
Chicago, No. 1	6.50 to 7.00
Cinn., No. 1 dl.	6.00 to 6.50
Cinn., No. 2	3.50 to 4.00
Cleve., No. 2	6.25 to 6.75
Det., No. 1 new deal.	5.00 to 5.50
St. L., No. 1	6.00 to 6.50
Val. new No. 1	9.25 to 9.75

MACHINE TURNINGS

Birmingham	3.50 to 4.00
Boston, dealers	1.75 to 2.00
Buffalo	4.75 to 5.25
Chicago	4.25 to 4.75
Cinn., deal.	3.75 to 4.25
Cleveland	5.00 to 5.50
Detroit	3.75 to 4.25
Eastern Pa.	5.00 to 5.50
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.00 to 7.50
St. Louis	3.00 to 3.50
Valleys	7.75 to 8.25

BORINGS AND TURNINGS For Blast Furnace Use

Boston	1.50 to 1.75
Buffalo	6.00 to 6.50
Cinn., deal.	4.50 to 5.00
Cleveland	6.50 to 7.00
Detroit, deal.	4.75 to 5.25
Eastern Pa.	5.50
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.25 to 7.75

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	3.50 to 4.00
Boston, chem.	7.00 to 7.25
Boston, deal.	1.50 to 1.75
Buffalo	6.00 to 6.50
Chicago	4.00 to 4.50
Cinn., deal.	3.75 to 4.25
Cleveland	6.50 to 7.00
Detroit, deal.	4.75 to 5.25
Eastern Pa.	5.00 to 6.00
E. Pa., chem.	10.50 to 12.00
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.50 to 8.00
St. Louis	5.50 to 6.00

PIPE AND FLUES

Cinn., deal.	6.00 to 6.50

RAILROAD GRATE BARS

Buffalo	6.50 to 7.00
Chicago, net	5.75 to 6.25
Cincinnati	5.50 to 6.00
Eastern Pa.	7.50 to 8.00
N. Y., deal.	5.00 to 5.50
St. Louis	6.00 to 6.50

FORGE FLASHINGS

Boston, deal.	5.00 to 5.25
Buffalo	7.50 to 8.00
Cleve. ov. 10 in.	7.00 to 7.50
Detroit	5.00 to 5.50

FORGE SCRAP

Boston, del.	2.00 to 2.25
Chicago	11.00 to 11.50
Eastern Pa., del.	8.00 to 8.50

ARCH BARS, TRANSOMS

Chicago, net	9.00 to 9.50
St. Louis	7.75 to 8.25

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	7.50 to 8.00
Chi., steelworks	7.00 to 7.50
Cleveland	6.75 to 7.00
Eastern Pa., del.	7.50 to 8.50
Pittsburgh	9.50 to 10.00
St. Louis	6.50 to 7.00

STEEL CAR AXLES

Birmingham	11.50 to 12.00
Boston, ship. pt.	11.00 to 12.00
Buffalo	14.50 to 15.00
Chicago	12.90 to 13.45
Eastern Pa.	17.00 to 18.00
St. Louis	11.50 to 12.00

SHAFTING

Bos., ship. pt.	10.00 to 10.50
Chicago	8.95 to 9.50
N. Y., deal.	9.00 to 9.50
St. Louis	9.00 to 9.50
E. Penna.	16.00

CAR WHEELS

Birming. iron	8.50 to 9.00
Boston, iron	14.00 to 14.50
Buffalo, iron	10.50 to 11.00
Buffalo, steel	11.00 to 11.50
Chicago, iron	9.50 to 10.00
Chi. rolled steel	9.50 to 10.00
Cincinnati, iron	9.50 to 10.00
E. Pa. steel	10.50 to 11.00
E. Pa. iron	12.50 to 13.00
Pitts. iron	11.00 to 11.50
Pitts., steel	11.50 to 12.00
St. Louis, iron	7.00 to 7.50
St. Louis, steel	8.50 to 9.00

NO. 1 CAST SCRAP

Birmingham	8.50 to 9.00
Buffalo (mach.)	10.25 to 10.75
Boston, textile	10.00 to 10.50
Chicago, mach.	9.80 to 10.35
Chi., railroad	8.70 to 9.25
Chicago, agri.	8.40 to 8.95
Cinn., mach. cup., gross	12.25 to 12.75
Cleve. cupola	10.00 to 10.50
Det., net deal.	8.00 to 8.50
E. Pa., cupola	12.50 to 13.00
N. Y. cup. deal.	7.00 to 7.50
N. Y., del. local foundries	12.00
Pitts., cupola	10.00 to 10.50
San Fran., del.	13.50 to 14.00
Seattle	5.00 to 7.50
St. L. No. 1 ma.	8.50 to 9.00
St. L. No. 1	7.50 to 8.00

HEAVY CAST

Boston	10.50 to 11.00
Bos. mach. cast.	11.50 to 12.50
Buffalo, break	6.75 to 7.25
Cleve., break	6.00 to 6.50
Detroit, auto, net deal.	10.50 to 11.00
Det., break., dl.	5.50 to 6.00
Eastern Pa.	9.50 to 10.00
N. Y., break, dl.	6.00 to 6.50
N. Y. No. 1 dl.	7.00 to 7.50
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston R. R.	13.00 to 13.50
Buffalo	10.00 to 10.50
Chicago, agri.	8.00 to 8.50
Chicago, R. R.	8.50 to 9.00
Cinci., R. R. del.	10.25 to 10.75
Cinci., agri. del.	10.00 to 10.50
Cleveland, rail	10.00 to 10.50
Det. auto deal.	9.50 to 10.00
St. Louis, rail	6.75 to 7.25

RAILS FOR ROLLING 5 feet and over

Birmingham	10.50 to 11.00
Boston	7.50 to 8.00
Buffalo	10.00 to 10.50
Chicago	10.50 to 11.00
Eastern Pa.	11.50 to 12.00
New York	6.25 to 6.75
St. Louis	10.50 to 11.00

LOCOMOTIVE TIRES

Chicago, cut	11.00 to 11.50
St. L., No. 1	9.00 to 9.50

LOW PHOS. PUNCHINGS

Chicago	11.00 to 11.50
Buffalo	12.50 to 13.00
Eastern Pa.	13.00 to 14.00
Pittsburgh	13.50 to 14.00

SOUNDNESS • SAFETY • STRENGTH •

Sound, flawless walls that allow for uniform expansion and contraction under extremes of temperature . . . absolute freedom from seams or weak spots that might cause failure at high pressure. These qualities, inherent in every Pittsburgh Seamless Boiler Tube, assure the utmost in strength, safety and economy wherever boiler tubes are used.

PITTSBURGH STEEL PRODUCTS COMPANY

Pittsburgh New York Detroit Chicago St. Louis Tulsa Houston

Pittsburgh Seamless

BOILER TUBES

ited to No. 1 steel with $7 paid for Worcester and $8 Bridgeport delivery. These prices are not fixed, however, variations of as much as 50 cents being noted, depending upon tonnage and buyer. Heavy breakable cast is off 50 cents. Borings and turnings continue weak. Textile scrap has sold at $8.50, but little has moved.

New York—Heavy breakable cast and No. 1 heavy melting steel are off 50 cents, shipments of the latter to eastern Pennsylvania being in light volume. A New Jersey foundry is in the market for breakable cast at $9.50. For No. 1 steel $8 is being paid in eastern Pennsylvania. Dealers' buying prices are generally unchanged. Most material moving in this district is to Buffalo by barge, $6.25 being paid.

Philadelphia—Trading in steel and iron scrap is limited to small scattered lots. Heavy melting steel is easier at $8 to $8.50, delivered. Florence Pipe & Foundry Co. is buying small lots of heavy breakable cast at $9.50. A leading Harrisburg, Pa., consumer has banned shipments and another eastern Pennsylvania consumer contemplates similar action. The ban at Claymont, Del., continues.

Pittsburgh—The tone of the iron and steel scrap market continues slightly easy as the result of lack of interest on the part of mills in buying at prices other than recent minimums. Sales of heavy melting steel have been made at $10.50 and $10.25, but in view of the inability of dealers to pick up material in any tonnage at less than $10.25 there is a lack of willingness on the part of sellers to book large orders. A similar situation prevails in hydraulic compressed sheets, on which dealers are bidding $10 to cover orders at that figure. Blast furnace material is slightly easier, following sales at $7.50 and $7.75 while machine shop turnings are nominally lower in a dull market. Scrap still is coming out in only small lots and railroad offerings continue limited.

Buffalo—Additional sales of about 2000 tons of No. 1 heavy melting steel for delivery at Bethlehem's Lackawanna plant are reported. The price is said to have been $9. These sales have temporarily removed dealers' hopes of getting higher prices. Receipts of outside material are so light that trade in many materials is practically at a standstill.

Cleveland—The one Cleveland consumer which has been accepting shipments of blast furnace scrap has suspended shipping instructions. Other grades, particularly heavier scrap, are inactive. This also appears true of the Youngstown district where mills are taking next to nothing. Quotations have not changed here or at Youngstown and are altogether nominal.

Detroit—Compressed sheets, No. 1 heavy melting and forge flashings have been marked down 25 to 50 cents in view of light buying. Several automobile scrap lists coming out in September were under former monthly offerings. Great Lakes Steel Corp. continues to operate three open-hearth furnaces. Increase in this number may be effected soon and in that event it is likely that prices will rise.

Cincinnati—Transactions in iron and steel scrap were light during the past week, with mills imposing restrictions on shipments. Current railroad scrap lists are abnormally small but may not be a reflection of discontent with previous bids. Quotations are nominally unaltered.

St. Louis—Purchasing of iron and steel scrap is almost at a standstill. Mills continue on low operating schedules and most are comfortably supplied. Dealers report contracts rapidly running out, with no new ones being placed. Some scrap at exceptional bargain prices is being picked up.

Toronto, Ont.—Iron and steel scrap is dull. Mills are not buying and demand for steel scrap is practically at a standstill. Iron grades also have been affected and only small orders are being closed. No. 1 machinery cast has some call, but sales are well under those of a couple of months ago. Stove plate and malleable grades are moving slowly while other lines have little call. Prices are unchanged.

Birmingham, Ala.—Scattering orders for steel and iron scrap are being placed by melters and the market continues quiet. Quotations are low and weak. Heavy melting steel maximum quotation is $8.50 and purchases have been made lower.

Canadian Scrap

Dealers' Buying Prices

Per Gross Ton

MONTREAL

Iron axles	$11.00
Steel axles	10.00
Car wheels	8.00
Stove plate	8.00
Wrought pipe	2.00
Turnings	2.00
Heavy melting steel	6.00

TORONTO

Steel axles	7.00
Iron axles	7.00
Heavy melting steel	7.00
Turnings	2.00
No. 1 mach. cast (net)	9.00
Malleable (net)	7.00

Coke

Domestic Demand Still Leads Foundry—East Taking More—Prices Generally Are Steady

COKE PRICES, PAGE 62

Pittsburgh—Domestic coke demand still is at a relatively better rate than that for other grades. Furnace coke is dull and moving no better than during recent weeks, while shipments of foundry coke are slightly less active. The market is fairly steady at $2.40 for furnace coke and $3.25 to $4.50 for the foundry grade.

New York—Sellers of metallurgical coke report a slight improvement in specifications, as a result of improved foundry melt. Foundry operations, it is now reliably estimated, are around 35 per cent, compared with 25 to 30 recently. Beehive furnace coke is unchanged at $2 to $2.25, Connellsville, and beehive foundry coke at $3 to $3.25, Connellsville, for the ordinary brand, and $4.50, Latrobe, for premium grades.

St. Louis—Demand for metallurgical coke continues light, with shipments to melters showing little change from the average rate of September. While the melt has increased slightly in some quarters, no reflection has thus far been experienced in specifications or new ordering. Unseasonably warm weather has held down consumption of domestic coke.

Cincinnati—Generally, specifications last week for by-product foundry coke were unimproved, although there was a tendency by some users to increase inventories with approach of winter weather.

Birmingham, Ala. — Slight improvement in domestic coke is noted, while foundry coke is moving slowly. Production is a little better than half normal. Small lots have been moving into Middle West. Foundry coke is $5.

Pacific Coast

Airship Dock Tonnage Brings Awards Above Last Year—Most Buying Is Small Lots Except in Public Projects—Pipe Sales Small but Pending Projects Total Large Tonnage

Seattle—Deliveries will be started in 75 days on the structural steel for the navy's airship dock at Sunnyvale, Calif., contract for which was let last week to Wallace Bridge & Structural Steel Co., Seattle. The dock is to be completed in 15 months. With machinery for operation of the dock, a total of 9000 tons of steel will be required.

Bars, Plates and Shapes

Several small tonnages of concrete bars are pending but nothing over 100 tons was awarded this week. Pacific Coast Steel Co. took 80 tons for a business building in Bellingham, Wash. Helena, Mont., opened bids for 125 tons of reinforcing bars and 30 tons of shapes in connection with the city water system. Bureau of roads has awarded two bridge contracts in Oregon involving 100 tons of concrete bars and 240 tons of shapes. Mill reinforcing prices are unchanged at 2.30c. There is only a nominal movement in merchant bars.

Inquiry for plates includes 300 tons for automobile license plates for the state of Washington, bids this month, and 500 tons of plates and shapes for two standpipes and water towers for Seattle.

Recent awards of structurals have practically cleaned up inquiries and no projects of importance have developed recently. Seattle engineers are completing plans for the University bridge approaches, 1200 tons, but no date for bids has been announced. A state bridge at Wenatchee, Wash., 700 tons, will be up for figures this month.

Finished Materials

While the September volume of business with wholesale jobbing houses was about equal to that of August, conditions from a price standpoint remain most unsatisfactory. Efforts to stabilize prices are expected to bring about concerted action soon. Already minimums have been announced but they are out of line. Conditions in Portland territory are similar. Sheets are moving as actively as any other item but are not up to normal.

Pipe Demand Is Slow

Inquiry for cast iron pipe is small as industrial requirements are below normal and municipalities as a rule have completed the year's purchases. Specifications for next year's supply will not be available for two months. Vancouver, B. C., is to call bids Oct. 19 for 965 tons. Victoria, B. C., will open tenders Oct. 12 for furnishing pipe and fittings, tonnage unstated, for extensions to the Cooke and Goldstream water systems. Spokane will open bids Oct. 15 for approximately 20,000 feet of soft annealed copper pipe of various dimensions, couplings and curb cocks.

Old Materials

Dealers are overstocked with steel and iron scrap, demand is lacking and prices are correspondingly weak. Offers have been made for No. 1 cast iron, cupola size, at $5 net ton, f.o.b., Seattle, a basis on which shippers cannot afford to forward their holdings. In Vancouver, B. C., the movement is also slow as foundries have contracts until the end of the year. Steel scrap is a drug under present conditions. The mills are not seeking further stocks.

Coast Pig Iron Prices

Utah basic	$22.00 to 24.00
Utah foundry	22.00 to 24.00
*German	24.25
*Indian	22.00 to 24.00

*C.i.f. duty paid.

Shape Aggregate Is High

San Francisco—(*By Air Mail*)—For the first time this year total awards of structural shapes exceed those for the same period last year, the total now being some 6000 tons larger than the comparable period of 1930. Last week's total exceeded any week since March. This was brought about by award of the 8000 tons for the airship dock for Sunnyvale, Calif., the largest of the year. Official award of the 110,000-ton Golden Gate bridge has not been made.

Little improvement is noted in demand generally and building operations continue on a limited scale. State, county and municipal projects continue to comprise most of pending projects.

Awards of reinforcing steel bars aggregated over 1200 tons. The largest letting involved 254 tons for highway work in San Benito county, Calif., placed with an unnamed interest. Pending business exceeds 13,000 tons. New inquiries include 542 tons for highway work in San Mateo county, and 223 tons for similar work in San Luis Obispo county. Out of stock prices in the San Francisco district continue unchanged at 2.60c, base, on carload lots and at 2.90c on smaller lots. In the Los Angeles district, 2.50c, base, applies on carload business and 2.80c on less than carload lots. Demand for merchant bars remains quiet and no large inquiries have come into the market of late. On this class of material 2.05c, c.i.f is general.

Plate Buying Is Small

Several projects involving plates have recently been awarded in the Pacific northwest, but most recent lettings and inquiries in California have involved lots of less than 100 tons. The Chicago Bridge & Iron Works booked 110 tons for a steel tank and tower for the General Hospital, Los Angeles. Bids have been opened on 225 tons of 24 and 36-inch welded steel pipe for the Reynolds irrigation district, Boise, Idaho. The material specified involves 3/16-inch plates. Prices range between 1.85c and 1.95c, c.i.f.

The Pacific Iron & Steel Co. took 500 tons for a sand and gravel plant at Boulder City, Nev., for the Six Companies Inc., and the Kyle Construction Co. booked 125 tons for a theater in Los Angeles. Bids have been opened on 1500 tons for the Third Street bridge, San Francisco, and on 626 tons of steel piling for the San Gabriel river outlet project for Los Angeles county. Plain shapes range between 2.05c and 2.15, c.i.f.

Other Finished Material

Although cast iron pipe awards this week were confined to lots of less than 100 tons, several large projects are up for figures or pending. The National Cast Iron Pipe Co. and the Pacific States Cast Iron Pipe Co. were low bidders on two schedules for the East Bay municipal water district, Oakland, Calif., calling for 1644 tons of pipe. Bids were opened Oct. 7 for 1725 tons for Long Beach, Calif. Demand for standard steel pipe is confined to small lots for immediate shipment. Stocks in warehouses are well rounded and movement from mills is light.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
½	58	44½	½	23	5
¾	62	50½	¾	28	11
1—3	64	52½	1—1¼	31	15
			1½—2	35	18

LAP WELD

2	57	45½	2	23	9
2½—6	61	49½	2½—3½	28	13
7—8	58	45½	4—6	30	17
9—10	56	43½	7—8	29	16
11—12	55	42½	9—12	26	11

BUTT WELD

Extra strong, plain ends

½	55	44½	¼ & ⅜	+13	+48
¾	60	49½	½	23	7
1—1½	62	51½	¾	28	12
2—3	63	52½	1—2	34	18

LAP WELD

Extra strong, plain ends

2	55	44½	2	29	13
2½—4	59	48½	2½—4	34	20
4½—6	58	47½	4½—6	33	19
7—8	54	41½	7—8	31	17
9—10	47	34½	9—12	21	8
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload Discounts, f. o. b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½, 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$33.00 to 35.00
Four-inch, Birmingham .... 37.00 to 39.00
Four-inch, Chicago ..... 43.00 to 46.00
Six to 24-inch, Chicago..... 40.00 to 43.00
Six-inch and over, N. Y..... 28.50 to 30.50
Four-inch, New York ..... 34.50 to 36.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	3.00c
Boston	3.265c
Buffalo	3.00c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	3.00c
Los Ang.	3.40c
New York‡(d)	3.10c
Philadelphia	2.60c
Pittsburgh	2.60c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.60c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.50c-3.31c
Boston	3.10c-3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los Ang. cl.	2.50c
Los Ang. lcl.	2.80c
New York	2.65c-3.10c
Phila.	2.40c-3.00c
Pittsburgh	2.60c
San Fran. cl.	2.60c
San Fran. lcl.	2.90c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	3.00c
Boston	3.35c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los Ang.	3.40c
New York(d)	3.10c
Philadelphia	2.50c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.50c

PLATES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.40c
New York(d)	3.30c
Philadelphia	2.50c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.915c
Buffalo	3.50c
Chattanooga	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.90c
Los Ang.	3.95c
N. Y. (d)	3.00c-3.40c
Portland	4.00c
Phila.*† (e)	3.05c
Pitts.**	2.60c to 2.85c
San Fran.	3.65c
Seattle	3.75c
St. Louis	3.45c
St. Paul	3.40c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.70c
Buffalo	3.70c
Chattanooga	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.60c
Detroit	3.50c
Los Ang.	4.70c
New York	3.50c-3.65c
Phila.*†(e)	3.55c
Pitts.**	3.40c
Portland	4.50c
San Fran.	4.15c
Seattle	4.25c
St. Louis	3.80c
St. Paul	3.545c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	5.45c
Buffalo	4.10c
Chattanooga	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	4.00c
Detroit	4.00c
Houston	5.40c
Los. Ang.	5.10c
New York	4.00c-4.10c
Phila.*† (e)	4.00c
Pitts.**	4.00c
Portland	5.00c
San Fran.	4.65c
Seattle	4.75c
St. Louis	4.35c
St. Paul	4.23c
Tulsa	5.10c

BANDS

Baltimore	3.50c
Boston	3.75c-4.25c
Buffalo	3.35c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	4.30c
New York(d)	3.40c
Philadelphia	2.90c
Pittsburgh	2.95c
Portland	3.50c
San Fran.	3.75c
Seattle	3.50c
St. Paul	3.75c
Tulsa	3.45c

HOOPS

Baltimore	3.50c
Boston	4.90c-5.40c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter	3.65c
New York	3.75c
Philadelphia	3.15c
Pittsburgh	3.60c
Seattle	4.90c
St. Paul	3.75c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.75c
Chicago	3.10c
Cincinnati	3.50c
Cleveland	3.10c
Detroit	3.40c
Los Ang. (a)	4.50c
New York	3.40c
Philadelphia*	3.40c
Pittsburgh	3.10c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.85c
St. Louis	3.35c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.65c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Clev. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more. (c) Plus mill, size and quantity extras. (d) Minus quant. diff. (e) New mill classif. ‡Domestic bars. *Plus quantity extras. **Less than 25 sheets. *†50 or more bundles.

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"THE BEST IN ROLLING MILL MACHINERY"

Mackintosh-Hemphill Designs and Builds

Blooming Mills	Manipulators
Universal Mills	Mill Drives
Billet Mills	Mill Tables
Merchant Mills	Shears
Structural Mills	Roll Lathes
Bar Mills	Sheet Mills
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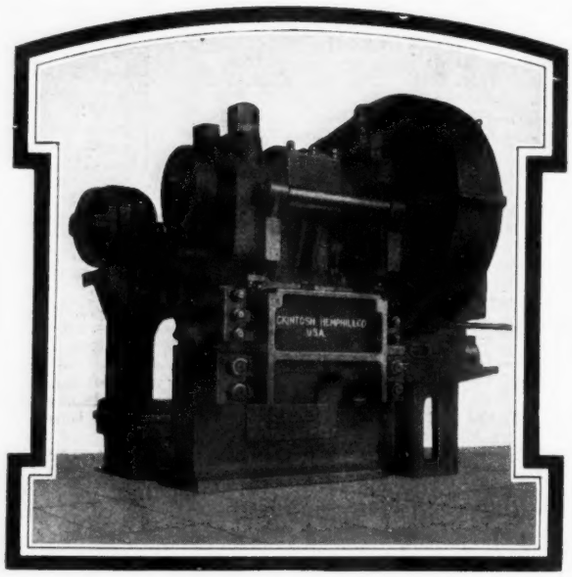
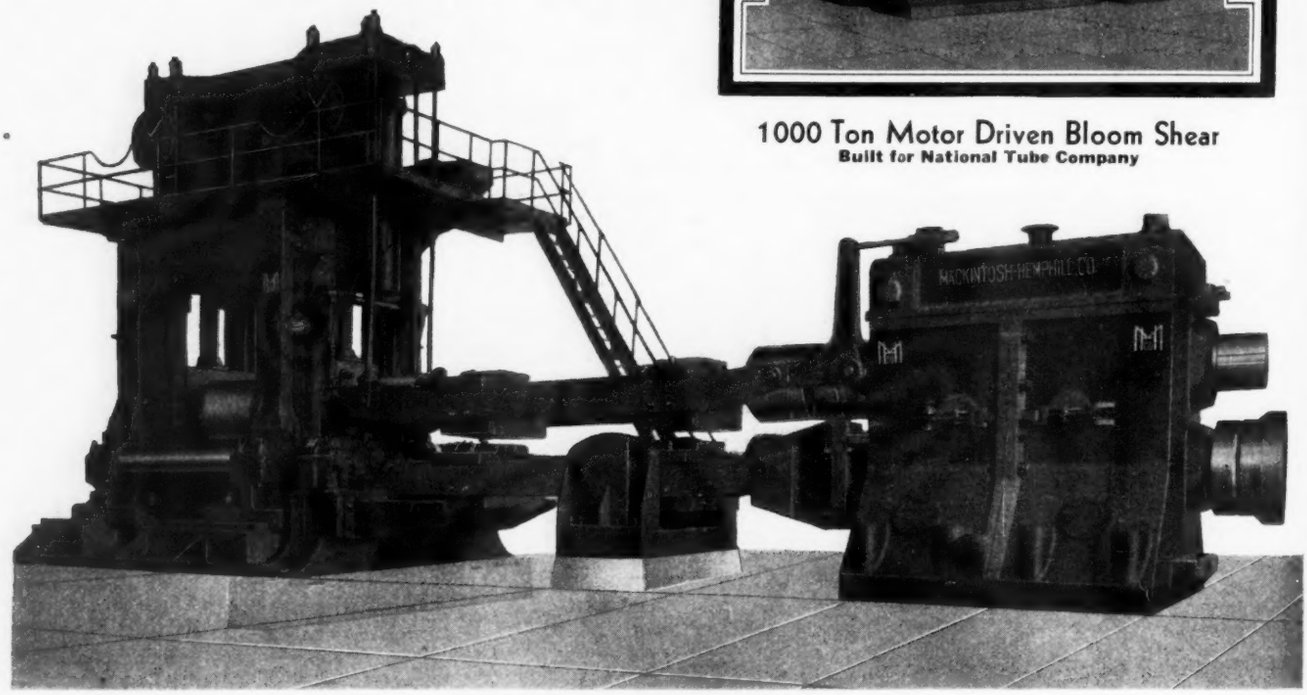


1000 Ton Motor Driven Bloom Shear
Built for National Tube Company



48" BLOOMING MILL
Built for Illinois Steel Company

MACKINTOSH-HEMPHILL CO.

ESTABLISHED 1803 AT PITTSBURGH

General Offices:
Point Building, Penn Avenue at Water Street
PITTSBURGH, PA.

Garrison Division	Midland Division	Wooster Division
PITTSBURGH, PA.	MIDLAND, PA.	WOOSTER, OHIO

Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 7.25c, Conn., for copper

Sheets

Yellow brass (high)	13.00
Copper, hot rolled	16.12½
Lead, full sheets (cut ½c more)	8.25
Zinc sheet (100-lb. base)	9.00

Tubes and Pipes

Seamless yellow brass (high)	16.25
Seamless copper	15.62½

Rods

Yellow brass (high, full turnings)	11.25
Naval brass	12.37½

Anodes

Copper, untrimmed	12.62½

Wire

Yellow brass (high)	13.50

Old Metals

Dealers' buying prices, cents lb. No. 1 Composition Red Brass

New York	4.00 to 4.25
Chicago	3.50 to 3.75
Cleveland	4.25 to 4.50
St. Louis	4.00

Heavy Yellow Brass

New York	2.50 to 2.75

Heavy Copper and Wire

New York	5.00 to 5.25
Boston	4.75 to 5.00
Chicago	4.00 to 4.50
Cleveland	4.00 to 4.50
St. Louis	4.25 to 4.50

Composition Brass Borings

New York	3.75 to 4.00

Yellow Brass Tubing

Cleveland	2.50 to 2.75

Light Copper

New York	4.00 to 4.25
Chicago	3.50 to 3.75
Cleveland	3.75 to 4.00
St. Louis	4.00

Light Brass

Boston	2.50 to 2.75
Chicago	2.00 to 2.25
Cleveland	1.75 to 2.00
St. Louis	2.25

Zinc

New York	1.00 to 1.25
Cleveland	1.00 to 1.25
St. Louis	1.50

Aluminum

Clippings, soft, Cleveland	12.00 to 13.00
Clippings, hard, Cleveland	8.50 to 9.50
Borings, Cleveland	3.50 to 4.00
Mixed cast, Cleveland	3.75 to 4.00
Mixed cast, Boston	3.25 to 3.50
Mixed cast, St. Louis	4.00

Secondary Metals

Remelt aluminum No. 12'	8.50 to 9.50
Brass ingots, 85-5-5-5	7.37½

Metals

Sentiment Improves Following Hoover Announcement—Copper Leads Others in Strength

New York—Sentiment in the nonferrous metal markets was improved this week following announcement of President Hoover's proposals for aiding business. The copper market led all others in strength, with inquiry from consumers showing a pickup, particularly for first quarter delivery.

Lead held unchanged at the lower levels reached at the beginning of the week, but zinc eased slightly. Straits tin was firmer after showing a continued downtrend for more than a month.

Copper—Tone of the copper market continues improved. Actual sales, however, are restricted but inquiry for early next year shows improvement. Quotations hold unchanged with some sellers reluctant to dispose of metal at prevailing quotations. Price shading, which of late has been a disturbing factor in the market, seems to have about disappeared. The coming conference of world copper producers in New York is expected to meet with success.

Tin—Trading in Straits tin is light due to the fluctuation in sterling exchange. Quotations on the whole are largely nominal and uncertain but are showing less tendency to decline than last month. Importers have made little effort to sell tin. On the other hand, consumers are hesitant to place commitments.

Lead—The metal declined $3 a ton late Friday and an additional $5 Monday morning. The cut is said to be occasioned by the continued dullness of the domestic market and also because of weakness in the foreign market which had closely approached domestic parity. The market has been somewhat more active at the present quotation of 3.82½c, East St. Louis, and 4.00c, New York.

Zinc—The metal eased off to 3.57½c at the beginning of the week, later declining to 3.50c. Demand shows little or no improvement. Producers have been offering little tonnage but this has been sufficient to unsettle the market.

Antimony—The market remains dull with quotations unchanged. Domestic stocks are considered low.

Silver—Prices are somewhat stronger. Some metal is being booked for delivery to India. Interest from China is insignificant, however.

Aluminum — Business continues light with prices steadv. International aluminum cartel will break up Jan. 1, it is reported.

By-Products Prices Cut 2 Cents; Supplies Are Light

New York—All distillate prices have been marked up 2.00c, including toluol, benzol, solvent naphtha and xylol. Supplies are light, there being little benzol and toluol in distributors' hands. Some contracting is being done, but the volume is not large. Naphthalene contracting season is at hand and consumers have already felt out the market for future needs. Indications are that prices for next season will show little change. Phenol is moving in moderate volume at unchanged prices.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26

Per Pound at Producers' Plants in 250-Pound Drums

Phenol	0.16 to 0.17

Per Pound at Producers' Plants in

Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75

Per 100 Pounds Atlantic Seaboard

Sulphate of ammonia	$1.30

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
October 3	7.00	7.37½	6.87½	22.37½	22.75	4.25	4.17½	3.60	22.90	6.55	35.00
October 5	7.00	7.37½	6.87½	22.25	22.62½	4.00	3.82½	3.57½	22.90	6.55	35.00
October 6	7.00	7.37½	6.87½	22.50	22.87½	4.00	3.82½	3.57½	22.90	6.55	35.00
October 7	7.00	7.37½	6.87½	22.62½	23.20	4.00	3.82½	3.50	22.90	6.55	35.00
October 8	7.00	7.37½	6.87½	22.37½	22.95	4.00	3.82½	3.50	22.90	6.55	35.00
October 9	7.00	7.37½	6.87½	22.87½	23.30	4.00	3.82½	3.50	22.90	6.55	35.00

Europe

Election Disturbs but Gives Hope to British Steel Market—Prices Rise to World Level

London—(*By Cable*) — The iron and steel markets are disturbed but cheerful due to the uncertainty resulting from the general elections called for Oct. 27. British iron and steel prices now are competitive in foreign markets where heretofore this was impossible. Prices on galvanized sheets and tin plate have been advanced substantially. Inquiries are active for these products. Finished steel as a whole remains dull. English fabricators have booked two bridges for Sierra Leone. A South African railroad has placed 2000 car axles with British makers. Domestic buying of pig iron is heavy, with east coast hematite hardening. Fresh buying of continental iron has been suspended. Paris, Brussels and Berlin report considerable confusion owing to a gold basis being quoted for new business. German railroads are reported to have ordered 320,000 tons of rails.

British Steel Prices Up As Sterling Declines

Birmingham, Eng.—Suspension of the gold standard and the movements of sterling which have followed it have an immediate effect in stimulating confidence in steel. Markets have been in a state of suspended animation all this week and where prices are outside the control of any association they have shown a definite upward movement.

This has been noticeable particularly in the galvanized sheet trade where a difference of 10s ($1.81) in the price is already recorded, both in Birmingham and South Wales markets. The nonferrous metal group has rallied strongly in the last few days. Spelter is definitely firmer and steel sheet bars show an advance of about 2s 6d ($0.45) for the week at £4 15s ($17.19) so that galvanized sheet makers have been favorably placed in improving the uneconomic standard of the last few weeks.

Heavy steel has not yet moved in sympathy with the general trend and chief interest has centered in semis which have already moved up under the influence of the altered exchange. Billets are 5s ($0.90) dearer at £5 2s 6d ($18.55).

For all practical purposes the continental market has been closed since the suspension of the gold standard. Continental houses withdrew quotations and Birmingham and London merchants promptly closed their books. In the rare instances where quotations have been offered they have been on the basis of dollars or francs. Considerable material is due for delivery to British works but it is expected that there will be delays until some fresh basis of quoting has been decided upon.

The monthly meeting of the Central Pig Iron Producers association yesterday made no change in the basis. During the week there had been a sharp improvement in pig iron business among Midland merchants and furnacemen, probably due to nervousness created partly by the financial upheaval and partly by the threat of an increase in pig iron prices. By the decision of the association the atmosphere has been cleared but it would not be surprising if an increase were declared at the quarterly meeting in a fortnight.

There is little doubt that the association in the Midlands will not hesitate to advance the price of pig iron should the upward movement in the fuel market continue. For the time being their order books have been strengthened by the contracts placed during the last few days but at all the furnaces in Derbyshire and Northamptonshire enormous stocks of iron are awaiting disposal.

After being idle for many weeks the Barrow Hematite Steel Co. Ltd. is relighting two furnaces. This will be followed by reopening the company's steelworks, which has been idle owing to lack of rail orders.

On the northeast coast there is a little more activity in finished steel and pig iron but the outlook is uncertain. Shipments for the month are 800 tons better than for the corresponding period of August. Imports, on the other hand, have been on a heavy scale and on one day this week 660 tons of steel billets were unloaded in the Tees.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Oct. 8 (a)	British gross tons U. K. ports		Continental metric tons Channel or North Sea ports	
Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)				
PIG IRON				
Foundry, 2.50-3.00 Silicon	$11.35	£2 18 6	$9.12 to $9.31	£2 7 0 to 2 8 0
Basic bessemer	11.64	3 0 0*	8.73 to 8.92	2 5 0 to 2 6 0
Hematite, Phos. .03-.05	12.61	3 5 0	.....	.....
SEMIFINISHED STEEL				
Billets	$19.89	5 2 6	$10.86 to $11.06	2 16 0 to 2 17 0
Wire rods, No. 5 gage	32.98	8 10 0	19.40	5 0 0
FINISHED STEEL				
Standard rails	$32.01	8 5 0	$25.22	6 10 0
Merchant bars	1.21c	7 0 0	.56c to .57c	3 2 0 to 3 3 0
Structural shapes	1.34c	7 15 0	.55c to .56c	3 1 0 to 3 2 0
Plates, †¼-in. or 5mm.	1.43c	8 5 0	.66c to .67c	3 13 0 to 3 14 0
Sheets, black, 24 gage or 0.5mm.	1.51c	8 15 0	1.37c to 1.40c	7 12 6 to 7 15 0
Sheets, gal., 24 gage, corr.	1.69c	9 15 0	1.60c to 1.62c	8 17 6 to 9 0 0
Bands and strips	1.64c	9 10 0	.72c to .74c	4 0 0 to 4 2 6
Plain wire, base	1.46c	8 10 0	.91c	5 1 3
Galvanized wire, base	1.90c	11 0 0	1.11c	6 3 9
Wire nails, base	1.90c	11 0 0	.92c	5 2 6
Tin plate, box 108 lbs.	$ 3.01	0 15 6	$2.55	0 13 2‡

British ferromanganese £17 9s 6d ($67.80) delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($34.92) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Renten Marks
Fdy. pig iron, Si. 2.5	$11.35	2 18 6	$11.03	280(2)	$12.88	460	$18.33	78
Basic bessemer pig iron	11.64	3 0 0*	10.24	260(1)	11.62	415	20.09	85.50
Furnace coke	2.13	0 11 0	5.71	145	5.18	185	5.03	21.40
Billets	19.89	5 2 0	16.55	420	17.50	625	25.97	110.50
Standard rails	1.43c	8 5 0	1.41c	785	1.57c	1,210	1.36c	127
Merchant bars	1.21c	7 0 0	.90c	500	.77c	590	1.37c	128
Structural shapes	1.51c	8 15 0	.99c	550	.76c	585	1.34c	125
Plates, †¼-in. or 5mm.	1.56c	9 0 0	1.26c	700	.92c	705	1.57c	147
Sheets, black, 24 ga. or 0.5mm.	1.51c	8 15 0	2.09c	1,160	1.82c	1,400	3.32c	255
Sheets, galv., corr., 24 ga. or 0.5mm	1.60c	9 5 0	2.39c	1,325	2.47c	1,900	3.53c	330
Plain wire	1.46c	8 10 0	1.68c	935	2.08c	1,600	2.21c	207
Bands and strips	1.64c	9 10 0	1.13c	625	.78c	600	1.58c	148

*Basic. †British ship-plates, Continental bridge plates. ‡German.

British quotations are for basic open-hearth steel, Continental usually for basic-bessemer steel.

(a) This week the lower exchange rate for sterling is used in computing British prices, depressing them abnormally. It is suggested in the cable from London that British producers will advance their quotations to neutralize this artificial decline in their prices.

Machinery

PRESIDENT HOOVER'S credit pool proposal may have prompt effect toward release of orders for a considerable number of machine tools known to be sorely needed. Postponement has been blamed to growing fear of the domestic financial situation. While inquiry and orders both are light and scattered, persistent work under new sales plans has enabled some companies to get an increasing number of these small, scattered orders. Monetary difficulties in Europe have diminished still further the trickle of foreign business, but more is expected from Russia. Keller Mechanical Engineering Corp. has been acquired by Pratt & Whitney Company.

New York—Most of the tools for the 207th street subway shops, about 50 in all, have been placed. It is announced that the low bidder on the entire lot will distribute this business among several equipment builders.

Some machine tool orders are pending. New York city departments are in the market for a shaper, planer, and lathes. A Connecticut builder took 15 lathes for the Brooklyn navy yard, on a list which has been pending for several weeks. Three larger lathes on this list will be readvertised.

Rumors persist, to the effect that Ford Motor Co. is about to enter the market for equipment for manufacture of a new model. It even is reported that one machine tool company already is building a production unit for a trial on certain parts of an eight cylinder model. In general, however, inquiry is slow and shows little improvement, extreme timidity being shown by all industries in the purchase of equipment of any sort, no matter how much it is needed.

News of major interest to machinery men this week is President Hoover's credit pool proposal, also the acquisition of Keller Mechanical Engineering Corp., Brooklyn, N. J., by Pratt & Whitney Co., Hartford, Conn through Niles-Bement-Pond Co.

Worcester, Mass. — The machine tool market still fails to show any definite trend. Uncertainty growing out of monetary difficulties in Europe, particularly in England, has put a stop, at least temporarily, to foreign business which previously had been a saving feature of the situation.

What Russia will do, nobody here ventures to say, although substantial new orders confidently are expected —sometime. Naturally, developments in connection with the Soviet industrial plan are being watched with close attention.

In this territory and throughout New England, both inquiry and demand are light and scattering. Absence of large buyers from the market holds machine tool plant operations at an extraordinarily low ebb. Certain long-pending Navy department business, momentarily expected, still fails to be closed.

The livest topic of discussion among machinery men is the possible effect on business of the credit pool proposal made last week by President Hoover, a favorable reaction being apparent.

Pittsburgh—A slight gain in miscellaneous inquiry has failed to offset quietness in awards of machine tools and total business shows little change since a month ago. September business for most sellers was the lightest in years.

Orders in practically all cases are for urgent requirements, users buying little equipment for replacement purposes. National Transit Pump & Machine Co., Oil City, Pa. has placed an order for a horizontal boring mill. Few, if any tools are being purchased by Westinghouse Electric & Mfg. Co. at this time, this likewise being true of other large users.

Cleveland — Persistent following out of carefully laid sales plans in at least one instance has enabled machine tool sales in August to surpass those of July, and in turn to bring September in ahead of August. While the total business involved is exceedingly small, the trend indicates fundamental soundness of the new plans.

There is conviction here that President Hoover's credit pool proposal will have a rather prompt effect toward releasing some machine tool orders, the withholding of which can be accounted for only by fear of the credit situation on the part of those machine tool users who are known to be sorely in need of the equipment.

Chicago—Casual negotiations continue for machine tools, and occasional shopping on prices is noted on the part of prospective buyers. Actual inquiries have diminished from a week ago. About the only sales reported this week have been two small lathes, accessories and some used equipment.

Two heavy duty grinders are before the market, one for a local steelworks and the other for Elgin, Joliet and Eastern railroad. Several tool and die shops in this district may be in the market within the next 30 days, and a gear products manufacturer is considering minor purchases. Some announcement as to prices is expected as an outcome of the annual meeting of the National Machine Tool Builders' association, scheduled here for Oct. 12, 13 and 14.

Pratt & Whitney Acquires Keller Corporation

New York — Announcement is made that the business and assets of Keller Mechanical Engineering Corp., Brooklyn, N. Y. have been acquired by Pratt & Whitney Co.

The Keller company for many years has specialized in the design and construction of diesinking and engraving machines. Its most recent developments have included electrical devices for automatically controlling the functions of precision machine tools of its own and of other makes.

Pratt & Whitney Co., which is a wholly owned subsidiary of Niles-Bement-Pond Co., has been engaged in the manufacture of fine machine tools and instruments of precision since 1860. The Keller company's business will be transferred from Brooklyn to the plant of Pratt & Whitney Co., which is located at Hartford, Conn.

Machinery Sales Are Made On the Pacific Coast

Seattle, Wash.—Navy department announces that the low bid on a precision lathe of toolroom type for the Puget sound navy yard was submitted by Monarch Machine Tool Co., Sidney, O. The amount of the bid was $3,203. This list also included a heavy engine lathe, on which American Tool Works Co., Cincinnati, was low with a bid of $9,803.

Another machinery transaction of interest, is the sale of an 84-inch chipper, a 110-inch chipper and other equipment by Summer Iron Works, Everett, Wash., to Weyerheaser Timber Co., Longview, Wash. This 110-inch chipper is said to be the first machine of its kind ever manufactured on the Pacific Coast.

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Up to 200 tons capacity

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Steam Drop Forge Hammers
Coke Pushers, Levelers and Door Lifters
Coal Pier Equipment
Rolling Mill Machinery
Cement Plant Machinery
Dock Handling Equipment
Coke Oven Equipment

271 of 100 Tons Capacity and over

LADLE AND STANDARD CRANES

59		100 tons
2	WORM DRIVEN Ladle,	100 tons
2		115 tons
6	WORM DRIVEN Ladle,	125 tons
45		125 tons
30		150 tons
3	WORM DRIVEN Ladle,	150 tons
6	WORM DRIVEN Ladle,	160 tons
2	WORM DRIVEN Ladle,	165 tons
4	WORM DRIVEN Ladle,	175 tons
27		175 tons
3	WORM DRIVEN Ladle,	200 tons
4		200 tons
5		225 tons
1		250 tons
3	WORM DRIVEN Ladle,	250 tons
3	WORM DRIVEN Ladle,	275 tons
1		275 tons
1		300 tons
3		430 tons

STRIPPING CRANES

8		100 tons
1		125 tons
21		150 tons
19		200 tons
1	Single Ram,	320 tons

COMBINATION CHARGERS AND STRIPPERS

3		100 tons
1		125 tons
3		150 tons
4		200 tons

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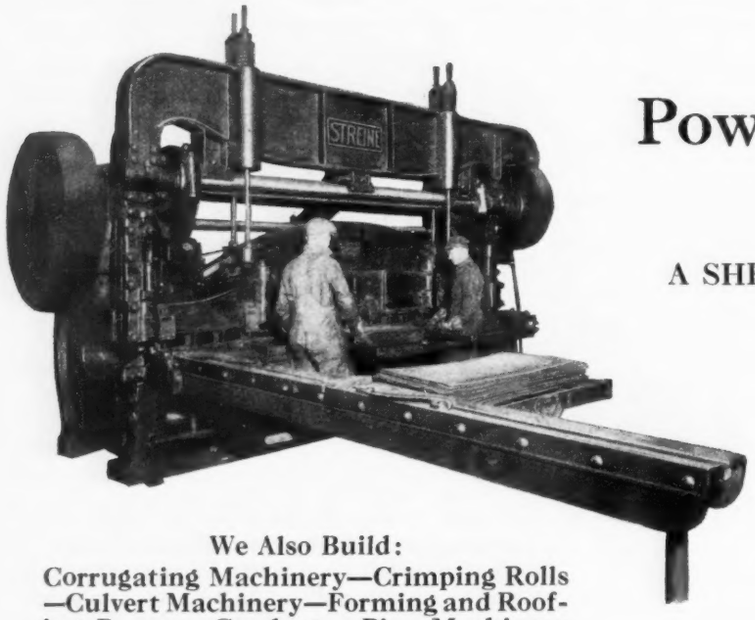
ENGINEERS AND BUILDERS



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The Streine Tool & Manufacturing Co.
New Bremen, Ohio

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

BOSTON—Massachusetts Automobile Service, 1228 Massachusetts avenue, Dorchester, Mass., is taking bids for construction of a 1-story repair shop, 60 x 160 feet, at 1236 Massachusetts avenue, to cost $40,000. R. E. Bossi, 117 East Cottage street, is architect.

MEDFORD, MASS.—Boston Elevated Railway Co., 31 St. James avenue, Boston, will award contract soon for a 1-story bus garage and machine shop, 65 x 155 feet, at Felsway W and Salem street, to cost $50,000. A. J. Blackburn, 31 St. James avenue, Boston, is architect.

TAUNTON, MASS.—Commission of Massachusetts department for mental diseases will take bids shortly for two 350-horsepower water tube boilers and stack for the state hospital, to cost $40,000.

WESTFIELD, MASS. — Westfield Plating & Polishing Co. has been reorganized as the New England Etching & Plating Co. and expansion of facilities is planned.

New York

BROOKLYN—Mayfair Iron Works has been incorporated with $10,000 capital by G. Abrams, 350 Stone avenue, Brooklyn, N. Y.

BROOKLYN—Hinrichs Foundry & Vault Light Co. has been incorporated with $100,000 capital by Barber & France, 32 Broadway, New York.

BUFFALO — Pletzker - Jentsch has been incorporated with $20,000 capital to manufacture and deal in machinery, by Werner, Harter & Moran, Buffalo.

BUFFALO—Indoor & Outdoor Advertising Co., Genesee building, has been formed to manufacture an illuminated metal advertising device for indoor or outdoor use. Eliot Armstrong and Jerome P. Weiss, both of Buffalo, are partners in the enterprise.

NEW YORK—New Process Bronze Corp. has been incorporated with $10,000 capital to manufacture railings and grilles, by M. H. Friedman, 135 Rivington street.

NEW YORK—Locktite Corp. has been incorporated with 200 shares common stock to manufacture lubricating devices, by E. Moss, 1775 Broadway, New York.

NEW YORK—Manhattan Universal Radiator Products Co. has been incorporated with $15,000 capital to manufacture radiator enclosures, by Davidson & Davidson, 67 Wall street, New York.

NEW YORK—Metal Design Works has been incorporated with 100 shares common stock to manufacture metal fixtures, by I. Golembe, 17 John street.

NEW YORK—Brode Sign Co. has been incorporated with 1000 shares no par value to manufacture and sell electrical devices, by J. A. Byrne, 551 Fifth avenue.

NEW YORK—Product Machine & Tool Works has been incorporated with $10,000 capital to manufacture and deal in hardware, by A. Samuelson, 501 East 161st street.

New Jersey

JERSEY CITY—Signs Inc. has been incorporated with $25,000 preferred stock and 2000 shares common stock to manufacture signs, by Abraham Natovitz, Jersey City.

NEWARK—Meeker Hammer Co. Inc. has been incorporated with $250,000 capital to manufacture electrically-driven hammers, by Harry Sutton, New York.

NEWARK—No-Glare Lamp Co. Inc. has been incorporated with $200,000 in preferred stock and 10,000 shares of common stock to manufacture lighting appliances, by Arthur Silberman, Newark.

UNION CITY—Combustion Oil Sales Corp. of New Jersey has been incorporated with 100 shares common stock to manufacture gas for fuel and light, by Platoff, Saperstein & Platoff, Union City, N. J.

Pennsylvania

CARNEGIE—Carnegie Appliance Co. has been incorporated with 60 shares no par value to manufacture household equipment and appliances. Robert A. Carter Jr., 732 Millvale avenue, Pittsburgh, is treasurer.

EPHRATA—Superior Machine & Tool Co. has been incorporated with capital of $15,000 and 50,000 shares no par value to manufacture machinery, tools and appliances of metal. George L. Nies, Ephrata, is treasurer.

PHILADELPHIA—R. & B. Auto Radiator Co. Inc. has been incorporated with $5000 capital to manufacture and repair automobile radiators, by Charles Rothberg, 2401 North Douglas street, Philadelphia, and associates.

PHILADELPHIA—Philadelphia Electric Co. has been permitted by the Public Service commission to acquire a controlling interest in the Philadelphia Steam Co. and will proceed to build heat supply mains in the central business district. Expansion is planned to cost $4,000,000.

PITTSBURGH—Woodings Forge & Tool Co. has been incorporated with 1000 shares no par value to manufacture and deal in railroad, mine and mill machinery. James K. Ruby, 1306 Park avenue, McKeesport, Pa., is treasurer.

PITTSBURGH—Torridaire Inc. has been incorporated with $10,000 capital to manufacture and sell automatic underfeed stokers. Charles B. Prichard, 1447 Beechwood boulevard, Pittsburgh, is treasurer.

WILLIAMSPORT — West Branch Corp. has been incorporated with $6400 capital to manufacture automotive parts. Paul O. Brosius, Lock Haven, Pa., is treasurer.

Ohio

CLEVELAND—Anco Freezer Co. has been incorporated with 250 shares no par value to manufacture refrigerating devices, by Pearl Franklin, Jack Franklin and Marguerite Slater, 5600 Euclid avenue, Cleveland.

COLUMBUS—New power plant for the state penitentiary will include a 3000-kilowatt double extraction turbo-generator at 400 pounds with 700 degrees total heat at throttle, extracting at 150 pounds and 100 degrees superheat and five pounds to condenser. Condenser 2500 square feet with two 1800-gallons per minute circulating pumps and one 70-gallons per minute condenser pump. Boiler plant to consist of two 500-horsepower water tube boilers with vertical headers, underfeed stokers, rear walls water-cooled, alternate sidewalls water-cooled. Bids on turbo-generator due Oct. 16 and on steam generating units Oc. 30.

EAST CLEVELAND, O.—Highway Electric Signal Co. has been incorporated with $15,000 stock and 100 shares no par value to manufacture traffic appliances, by George Schilder, Henry Gifford, and Allen Carlet, 225 Forest Hill building, Cleveland.

GALION—Gledhill Road Machinery Co., care of E. C. Gledhill and W. V. Goshorn, Galion, will erect a factory building, 90 x 200 feet, 1 story, to cost $40,000. T. J. Schirtzinger, 1353 North High street, Columbus, O., general contractor, is taking bids on subcontracts.

Indiana

FORT WAYNE—Board of public works, John C. Trier, chairman, city hall, is taking bids until Oct. 27 for a filtration plant in Three Rivers park, to cost $1,000,000.

Illinois

CHICAGO—Douthitt Corp., 221 North LaSalle street, has been incorporated with $100,000 capital and 20,000 shares no par value to conduct a general machinery business, by Len Young Smith, L. M. Labudde and Lydia Hilger. Church, Traxler & Kennedy 10 South LaSalle street, are correspondents.

CHICAGO — Transamerican Airlines

Corp., division of Thompson Aeronautical Corp., R. C. Marshall president, Cleveland, has started construction of a $75,000 development at the Chicago municipal airport as the western terminus of its lines. Roberts Wright Co., Cleveland, is engineer in charge of work.

Southern States

WILMINGTON, DEL.—Hayden-Davis Engine Co. Inc. has been incorporated with 12,000 shares common stock to manufacture motors, by Corporation Trust Co., Wilmington.

WILMINGTON, DEL.—Bacly Mfg. Co. has been incorporated with 600 shares common stock to manufacture metal products, by Corporation Fiscal Co., Wilmington, Del.

WILMINGTON, DEL.—Northeastern Engineering Corp. has been incorporated with 1000 shares common stock to promote inventions, by Corporation Trust Co., Wilmington.

WILMINGTON, DEL.—American Automatic Electric Sales Co. has been incorporated with 5000 shares common stocks to manufacture tools and instruments, by Corporation Trust Co., Wilmington, Del.

WILMINGTON, DEL.—Standard Automatic Signal Corp. of Delaware has been incorporated with $100,000 capital and 2000 shares common stock to manufacture automatic signal equipment, by Corporation Trust Co., Wilmington.

WASHINGTON—Bids will be received until Oct. 13 by the bureau of supplies and accounts, navy department, for furnishing eight 5-horsepower electric motors with controllers and resistors, for the naval aircraft factory at Philadelphia, on schedule No. 6666.

LUDLOW, KY.—Construction of a municipal waterworks, a vote on which will be taken Nov. 3, when bonds for $120,000 will be submitted, includes two deep wells and pumps, a water softening plant, about 1 mile of 12-inch main and a 500,000-gallon tank, steel or concrete. Glazier & Morlidge, 305 Walnut street, are engineers. (Noted Oct. 5.)

MT. STERLING, KY.—Bids will be taken soon on a diesel engine electric light plant. Burns & McDonnell, 400 Interstate building, Kansas City, Mo., are engineers.

Arkansas

LITTLE ROCK—Arkansas Construction commission, J. M. Hill chairman, will receive bids until Oct. 22 for a boiler house, stack, boilers and appurtenances and underground steam and hot water distribution system for the state hospital for nervous diseases in Saline county.

PARAGOULD—Hickson Rogers Mfg. Co. has started reconstruction of its boiler and engine room buildings, following destruction by fire, and plans to have the entire plant completed by Dec. 1.

Texas

DALLAS—Austin Co., Cleveland, advises that structural and reinforcing steel for office and hangar building for the United Air Lines at Dallas will be placed through the Austin Co. branch office at Dallas. The hangar section will be 120 x 120 feet and the office section 20 x 120 feet.

Wisconsin

MILWAUKEE—General contract for first unit of high school in Whitefish Bay, to cost $1,000,000, has been let to Paul Riesen's Sons Co., 2660 North Humbolt avenue, Milwaukee. First unit to cost $450,000. M. Tullgren & Sons Co., 1234 North Prospect avenue, Milwaukee, is architect.

NEILLSVILLE—American Telephone & Telegraph Co., 311 West Washington street, Chicago, will build a repeater station here, to cost $60,000.

OSHKOSH—C. R. Meyer & Sons Co., Oshkosh, has been given a contract for the Merrill school center, to cost $164,920.

North Dakota

DICKINSON, N. D.—Northern Pacific railroad, M. F. Clements engineer, 1208 Railway building, St. Paul, has awarded contract to Peppard & Fulton Co., Roanoke building, Minneapolis, for construction of a coaling station to cost $50,000. (Noted Sept. 24.)

Iowa

REMSEN—City has voted $75,000 for a municipal electric light and power plant.

Nebraska

CURTIS, NEB.—State Board of Regents, Agricultural college, care L. F. Seaton, operating superintendent, is having plans drawn for a 1-story shop building, 65 x 100 feet, to cost $20,000. Meginnis & Schaumberg, 614 Federal Trust building, Lincoln, Nebr., are architects.

Pacific Coast

SEATTLE — Research Engineering Corp., 907 Empire building, has been incorporated with $100,000 capital to engage in metalliferous mining, by E. E. Gerrick and W. D. McArthur.

Dominion of Canada

VICTORIA, B. C.—Extension of the yon to Prince George is planned, at a cost of $10,000,000, expense to be divided between the federal and provincial governments.

New Trade Publications

FLEXIBLE COUPLINGS — Morse Chain Co., Ithaca, N. Y., in Bulletin No. 47 describes its type of flexible couplings, with many illustrations, data tables and charts. Among the illustrations are several showing varied uses of the couplings in different branches of industry.

FORGING MACHINES—National Machinery Co., Tiffin, O., is distributing a folder calling attention to features of its forging machines which give individuality and add to efficiency of performance. Illustrations show characteristics of the various parts in relation to the complete machine.

ZINC—New Jersey Zinc Co., 160 Front street, New York, is distributing two booklets, one on die castings of zinc and the other on the metal and its alloys. In the former is described the growing use of zinc alloys for die castings for automotive and many other uses. Unusually attractive illustrations tell through the eye the uses to which they may be put in a wide variety. A table is given of the properties of die cast zinc alloy. The other booklet is in standard notebook size, punched for rings, and contains a wealth of information on zinc and zinc alloys, their properties and uses. It also contains standard methods of chemical analysis of slab zinc, determination of lead, iron and cadmium.

TRAMRAIL—A bulletin by the Cleveland Electric Tramrail division of the Cleveland Crane & Engineering Co., Wickliffe, O., deals with efficient methods of warehousing materials, suggesting benefits of the use of its tramrail in storing and removing the various sorts of packages necessary to handle.

WELDING EQUIPMENT—Torchweld Equipment Co., 224 North Carpenter street, Chicago, has issued a pocket catalog of its line of equipment for use of the welder. Numerous new items of equipment added since the previous catalog serve to supplement the original line.

ACHIEVEMENTS—No. 3 of a series of bulletins has been issued by the Wellman Engineering Co., Cleveland, describing high points in its career of engineering. This number describes special cranes designed by this company for rapid pouring of concrete in the locks of the Panama canal and the great lock gate lifter built for the new Welland ship canal.

ELECTRIC FLOW METER — A broadside by the Brown Instrument Co., Philadelphia, calls attention pictorially to the value of departmentalizing steam accounting to give knowledge of savings or waste in the separate departments. The value of the Brown electric flow meter in giving a record is illustrated and details of its operation are shown.